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University of Illinois
School of Pharmacy

CHICAGO COLLEGE OF PHARMACY

Announcement
1909 and 1910

REGISTER FOR 1908-1909

THE COLLEGE BUILDING.

FIFTIETH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY
CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street,
Chicago, Illinois

SESSION OF
1909 AND 1910

REGISTER FOR
1908 AND 1909

CHICAGO . . . PUBLISHED BY THE UNIVERSITY

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1909/10

FACULTY

1908—09.

EDMUND J. JAMES, Ph. D., LL. D., President of the University, Urbana.

FREDERICK MARION GOODMAN, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, 36 East Twelfth Street, Chicago.

CARL SVANTE NICANOR HALLBERG, Ph. G., Professor of Theoretical and Practical Pharmacy, 36 East Twelfth Street, Chicago.

WILLIAM AUGUST PUCKNER, Ph. G., Professor of Chemistry, 36 East Twelfth Street, Chicago.

WILLIAM BAKER DAY, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 36 East Twelfth Street, Chicago.

HENRY HORACE ROGERS, Ph. B., M. D., Lecturer on Physiology, Highland Park.

CLYDE MASON SNOW, Ph. G., Instructor in Pharmacy, 36 East Twelfth Street, Chicago.

EDMUND NORRIS GATHERCOAL, Ph. G., Instructor in Pharmacognosy, 36 East Twelfth Street, Chicago.

ALBERT HENRY CLARK, Ph. G., Instructor in Chemistry, 36 East Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of that kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance. the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

On the first of May, 1904, the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government script for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $2,000,000.

ANNOUNCEMENT

The fiftieth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 21, 1909, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 28, 1910, on which day the graduating exercises will be held. The longer course will close June 10, 1910.

AIMS AND SCOPE

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. The building was designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout. Elevator service is provided.

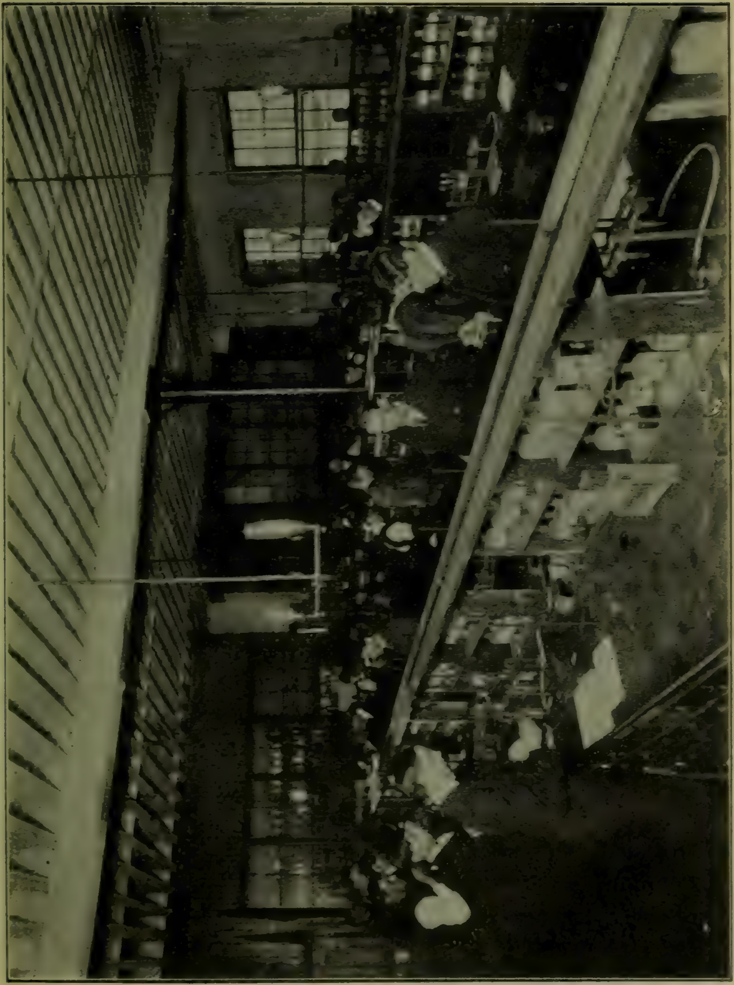
The location is an ideal one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

THE LECTURE HALLS

Are three in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation



THE QUALITATIVE ANALYTICAL LABORATORY.

rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

Are six in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students, working at one time.

The Qualitative Laboratory

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Quantitative Laboratory

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the

THE QUANTITATIVE ANALYTICAL LABORATORY.

building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is freely accessible to students.

THE LABORATORY FOR ADVANCED CHEMISTRY

Is 21 by 40 feet in size, has excellent light and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist.

THE LABORATORY FOR PHARMACOGNOSY

Is 26 by 51 feet in size, situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound miscroscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive

THE LABORTORY FOR PHARMACOGNOSY.

herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

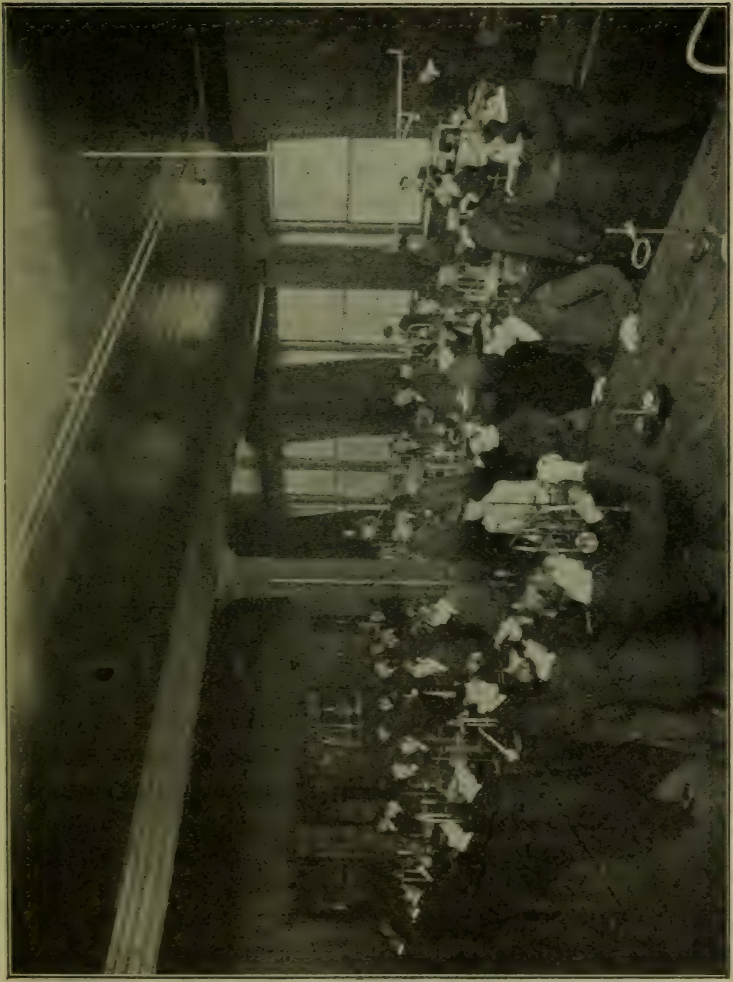
For class work in bacteriology additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators and the usual bacteriological equipment. A projection microscope has recently been added.

THE PHARMACEUTICAL LABORATORY

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

THE DISPENSING LABORATORY

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet



THE GENERAL PHARMACEUTICAL LABORATORY.

in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. The laboratory will accommodate classes of forty students working at once.

THE LIBRARY

Adjoins the office on the third floor and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable supplement to these.

THE STUDENTS' ROOMS

A reading room and locker room on the third floor is provided with 238 steel lockers for the use of students in caring for coats, hats and books. A smaller room for women students exclusively, is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must furnish evidence of having completed one year of work in an accredited high school or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

Entrance Examinations

For the benefit of those candidates for admission to the course leading to the degree of Graduate in Pharmacy, who are unable to present credentials such as will satisfactorily meet the above requirements, entrance examinations will be given at the School on Tuesday, September 14, 1909, beginning at 9 a. m., and including the following subjects:

1. English Composition.
2. Elementary Algebra.
3. Either Elementary Latin or German.
4. Either Physiography or Physiology.

Advanced Standing

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this College.

SPECIAL STUDENTS

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements may be admitted as special students *not candidates for a degree* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

COURSES OF INSTRUCTION

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days of each week and from twenty to twenty-one hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—JUNIOR YEAR

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified

by practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative

pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

Chemistry—Junior Year

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic

dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY—JUNIOR YEAR

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual

cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoölogical order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts; specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

Pharmacy—Senior Year

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their phar-

maceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled

and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc, are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises.

CHEMISTRY—SENIOR YEAR

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the

consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

MATERIA MEDICA — SENIOR YEAR

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly given within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 25), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing,

measuring, cutting, mounting objcets for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions in food and drug laboratories, this School offers a course leading to the degree of Pharmaceutical Chemist and comprising two annual sessions of thirty-six weeks each, with instruction on five days each week, and amounting to about thirty-three hours weekly or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of

Graduate in Pharmacy (see pages 21 to 30), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (chemistry 3). Special attention is given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After a thorough course in the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities such as arsenic, copper, lead, etc. The course concludes with a study of the detection of metallic elements and inorganic acids in the presence of organic compounds, and the recognition of carbon, hydrogen, nitrogen, etc., in organic compounds.

Text Book—Qualitative Analysis, Prescott & Johnson.

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Text Books—Quantitative Analysis Select Methods, Clowes & Coleman; Volumetric Analysis, Coblentz.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehyds (detection and estimation of formaldehyds, class reactions for aldehyds, estimation of citral in lemon oil), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products.

Text Books—Outline in Quantitative Analysis, Puckner; U. S. Pharmacopœia.

New Remedies.—Following the course in organic chemistry (Chemistry 5), the many new remedies, especially the so-called "synthetics," are taken up by classes. In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to these new remedies, their chemical constitution, derivation, tests for identity and purity, incompatibilities together with their synonyms and trade names.

Text Books—New and Non-Official Remedies; American Medical Association.

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine are discussed and the application of the methods of analysis previously studied to the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, also the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder and beverages, and are supplemented by special methods.

The composition of mineral waters and their analysis is next considered, also the sanitary analysis of water is taken up practically in the laboratory.

Pharmacy.—The work in Pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra-official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in the various surgical specialties: Dermatology, Opthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of the most eminent practitioners.

The lectures also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws; Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine are also considered.

Text Book.—Physicians' Manual of the Pharmacopœia and the National Formulary, Hallberg and Salisbury.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed and due consideration is paid to the ferments, ptomaines, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances are noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air and water forms an important part of the course.

Text Book—Jordan's Bacteriology.

Applied Microscopy.—A thorough study of important powdered drugs and spices, with their substitutes and adulterants, is made and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce is undertaken and instruction in the microscopic examination and identification of the urinary sediments: blood, pus, tube-casts and crystalline substances forms a part of the course.

Text Books.—Microscopical Methods, Gage; Microscopy of Vegetable Foods, Winton.

Field Work in Botany—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis such as constitutes a valuable supplement to the lectures in that branch.

Text Book.—Gray's School and Field Botany.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

CHEMISTRY.—*Smith's College Chemistry,* Long's Analytical Chemistry, Sadtler and Coblentz's Pharmaceutical Chemistry, *Puckner's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott and Johnston's Qualitative Analysis, Coblentz's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology,* Steven's Plant Anatomy, Students' Standard Dictionary, Dorland's or Gould's Medical Dictionary.

PHARMACY.—*The Pharmacopœia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

The additional books required for the longer course are mentioned in the description of the curriculum, pages 30 to 35.

PRIZES.

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Two such memberships are offered by members of the faculty: One of these prizes is awarded for second highest standing in pharmacy, the other for excellence in pharmacognosy.

FEES AND EXPENSES.

MATRICULATION.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College, and to cover breakage or damage to such apparatus as well as needless or willful damage to fixtures or building each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, together with a class charge for such apparatus as is used by the class in common, also a locker fee of one dollar for locker in the coat-room, if used by the student. The remainder will be refunded at the close of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

PAYMENT OF FEES.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course.

BOARD AND LODGING.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

BOOKS.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

SELECTION OF SEATS.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT.

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to eight dollars per week.

STATE REGISTRATLON.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, accepted in lieu of examination for registration in about ten states and territories, and in several other states including New York and Pennsylvania, where graduation prerequisite laws are in force, this school is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs," required by the law, for the actual time of attendance at a school of pharmacy but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for matriculation blank, address.

W. B. DAY, *Actuary.*

Michigan Boulevard and Twelfth Street, Chicago, Ill.

GRADUATES, 1909

Degree of Pharmaceutical Chemist

Charles Wesley Brown	Ruthville, Ga.
Elmer Eldorado Cassin, Ph. G.	Ogden, Utah.
De Lancey Thomas Gunning	Wilmington.
H. August Langenhan, Ph. G.	Ableman, Wis.

Degree of Graduate in Pharmacy

Gustav Adolph Anderson	Rockford.
Luther Baker	Astoria.
Hugo Frank Beyermann	Chicago.
John Kosmer Cheleski	Chicago.
H. Harry Conners	Bellevue, Ohio.
Augustus F. Cover	Toulon.
Horace Otto Dahlin	Pittsburg, Pa.
Anna Eicher	Chicago.
Carl David Ekstrom	Chicago.
Frederick Louis Frauenhoff	Aurora.
Schuyler Van Rensselaer Gross	Lake Mills, Wis.
Julian Bulmer Howell	Du Quoin.
John George Howly	La Crosse, Wis.
Otto William Leininger	Chicago.
Otto William Lukasek	Chicago.
Thomas Joseph McNamara	Ottawa.
John Joseph Michalak	Chicago.
Grover ClevelandMontgomery	Birds.
Frank H. Niemeyer	Dakota City, Neb.
Thomas Osborne	Chicago.
Alexander Casimir Peska	Chicago.
William Ernst Ploetz	Sheboygan, Wis.
Samuel George Prentice	Chicago.
Clarence Edward Raetz	Appleton, Wis.
John Myron Rambo	La Moille.
Larry Lewis Rummerfield	Rockport, Mo.
Charles Shpisman	Chicago.
John Edgar Sisk	Marion.
Herbert William Smith	Quincy.
Matthew Gustave Stahlfeld	Chicago.
William J. Staman	St. Joe, Ind.
David Emanuel Swanson	Chicago.
Milton White Thompson	Chicago.
Harry Aloys Underriner	Effingham.
Richard Van Dusen	Allegan, Mich.
George Kimmel Voss	Du Quoin.
Henry Venn	Chicago.
George Carl Wirth	Duluth, Minn.
Clemence Zimmermann	Peoria.
Winfield Scott Hubbard (Class of '04)	Grand Junction, Colo.
George Leo Detrick (Class of '05)	Chicago.
Frank Edmund Blake (Class of '07)	Watseka.
Floyd Falconer Bunch (Class of '07)	Chicago.
Dee Earl Ellsworth (Class of '07)	Chicago.
Jacob Goodman (Class of '07)	Chicago.

Andrew Vern Plummer (Class of '07)	Fennville, Mich.
Bertha Reisman (Class of '07)	Chicago.
Frederick Henry Ruicker (Class of '07)	Chicago.
Jesse F. N. Buerkett (Class of '07)	Springfield.
Walter William Doerr (Class of '08)	Chicago.
Otto August Fett (Class of '08)	Chicago.
Otto John Lorenz (Class of '08)	Chicago.
Edward Emil Luken (Class of '08)	Chicago.
Eugene Lester Miles (Class of '08)	Chicago.
James Strachen Miller (Class of '08)	Chicago.
Frederick James Lyons (Class of '08)	Chicago.
Herman Lawrence Rauschert (Class of '08)	Lake Mills, Wis.
Harry Garrison Skinner (Class of '08)	Yates City.
John Staszak (Class of '08)	Chicago.
John Joseph Urban (Class of '08)	Chicago.

CERTIFICATES

Mary Leinbaugh Anderson	Dallas City.
James Elmer Arkins	La Salle.
Urban Volpert Comes	Chicago.
Charles Patt Eck	Chicago.
Edward George Fingl	Chicago.
Louis Evan Halperin	Chicago.
Charles Hibbe	Chicago.
Victor A. Kremer	Chicago.
Leon Arthur Marks	Chicago.
Joseph Alfred Merrill	Chicago.
Charles Joseph Mrazek	Chicago.
Edwin Sidney Myerson	Chicago.
Clarence Julius Oberg	Chicago.
Vito Pisani	Chicago.
Felix James Ratajik	Chicago.
Rutherford Gustavus Rosenstone	Cambridge.
Halley Ambrose Smith	Antioch.
Charles Stulik	Chicago.

Class Honors, Excellence in Scholarship

Senior Class

William Ernst Ploetz
Charles Shpisman
Harry Aloys Underriner
Frederick Louis Frauenhoff
Edward George Fingl
Charles Stulik

Junior Class

Sister Mary Benigna
Arthur A. Mester
Charles Edward Scharf
Leona Miles Hatch
Albert C. Kauffman
Walter C. Seibert
Carl Speckhart
Arthur Frederick Bagge
Ralph Henry Walker

PRIZES

William Ernst Ploetz	Biroth Prize
Harry Aloys Underriner	Becker Prize
Frederick Louis Frauenhoff	A. Ph. A. Membership in Pharmacy.
Charles Shpisman	A. Ph. A. Membership in Pharmacognosy.

LIST OF STUDENTS

Session of 1908-1909

SENIORS

Anderson, Gustav Adolph	Rockford.
Anderson, Mary Leinbaugh	Dallas City.
Annibale, Frank	Chicago.
Arkins, James Elmer	La Salle.
Baker, Luther	Astoria.
Beyermann, Hugo Frank	Chicago.
Bock, William	Smithton.
Buresch, Louis Albert	Chicago.
Carthan, William Arthur, A. B. (Morris Brown College), 1902	East Macon, Ga.
Cheleski, John Kosmer	Chicago.
Comes, Urban Volpert	Chicago.
Conners, Harry	Bellevue, Ohio.
Cover, Augustus F.	Toulon.
Cropper, Pearl Arthur	Chicago.
Dahlin, Horace Otto	Pittsburg, Pa.
Davies, Byron Lake	Chicago.
Eck, Charles Patt	Chicago.
Eicher, Mrs. Anna	Chicago.
Ekstrom, Carl David	Chicago.
Fingl, Edward George	Chicago.
Ford, Robert	Denver, Colo.
Frauenhoff, Frederick Louis	Aurora.
Frish, Frank Lawrence	Chicago.
Golombiewski, John Peter	Chicago.
Gross, Schuyler Van Rensselaer	Lake Mills, Wis.
Haffner, Edward John	Farmer City.
Halperin, Louis Evan	Chicago.
Hibbe, Charles	Chicago.
Howell, Julian Bulmer	DuQuoin.
Howly, John George	La Crosse, Wis.
Josenhans, Paul Reinhold	Chicago.
Kobylanski, John Francis	Chicago.
Kowalski, Czeslaw Martin	Chicago.
Kremer, Victor A.	Chicago.
Leininger, Otto William	Chicago.
Lienhardt, Theodore Gustave	Oak Park.
Lindstrum, Charles Edward	Chicago.
Luckenbach, Walter Conrad	Oconto, Wis.
Lukasek, Otto William	Chicago.
Lutz, Carl William	Ottawa.
Marks, Leon Arthur	Chicago.
McNamara, Thomas Joseph	Ottawa.
Merrill, Joseph Alfred	Chicago.
Michalak, John Joseph	Chicago.
Montgomery, Grover Cleveland	Birds.
Mrazek, Charles Joseph	Chicago.
Mueller, John Fred	Quincy.
Myerson, Edwin Sidney	Chicago.
Niedzwiecki, Leo Joseph	Chicago.
Niemeyer, Frank	Dakota City, Neb.
Oberg, Clarence Julius	Chicago.
Osborne, Thomas	Chicago.
Peska, Alexander Casimir	Chicago.

Pisani, Vito	Chicago.
Ploetz, William Ernst	Sheboygan, Wis.
Prentice, Samuel George	Chicago.
Propp, Charles	Chicago.
Raetz, Clarence Edward	Appleton, Wis.
Rambo, John Myron	La Moille.
Ratajik, Felix James	Chicago.
Rosenbaum, Frank Albert	Chicago.
Rosenstone, Rutherford Gustavus	Cambridge.
Rouleau, Francis Joseph	Manteno.
Rummerfield, Larry Lewis	Rockport, Mo.
Ruth, Grove Helmer	Lakefield, Minn.
Shpisman, Charles	Chicago.
Sisk, John Edgar	Marion.
Smith, Ellis Glen	Bloomington.
Smith, Halley Ambrose	Antioch.
Smith, Herbert William	Quincy.
Stahlfeld, Matthew Gustave	Chicago.
Staman, William J.	St. Joe, Ind.
Starshak, Alphonse Leon	Chicago.
Stulik, Charles	Chicago.
Swanson, David Emanuel	Chicago.
Terrell, Edward	Chicago.
Thompson, Milton White	Chicago.
Trachman, Charles	Ransom.
Underriner, Harry Aloys	Effingham.
Van Dusen, Richard	Allegan, Mich.
Voss, George Kimmel	DuQuoin.
Waterman, Ben Colby	Kilburn City, Wis.
Webb, Thomas Edward	Warren, Ohio.
Wester, Gustav Adolph	Chicago.
Winborn, Elmer Norris	Detroit, Mich.
Wirth, George	Duluth, Minn.

JUNIORS

Alford, James Bell	Columbus, Miss.
Allegretti, Joseph	Chicago.
Anderson, John Berger	Peoria.
Armstrong, Leonard Knowles	Peoria.
Bagge, Arthur Frederick	Aurora.
Baker, Roy Ernest	Chicago.
Ball, Raleigh Dudley	Toluca.
Beard, Eugene Truman	Columbus, Miss.
Bazner, Gustave	Chicago.
Beck, John	DuQuoin.
Benson, John Simon	Joliet.
Bolinger, La Rue R.	Springfield.
Brenner, James E.	Rensselaer, Ind.
Brown, Rush Arthur	Sioux Falls, S. D.
Caldwell, Robert Henry	Caledonia, Miss.
Carlisle, Harley Med	Eldorado.
Cholewinski, Andrew Francis	Chicago.
Cole, Arvelle Richard	St. Louis, Mo.
Coleman, T. Edward	Oneida.
Colson, Henry William	Chicago.
Cool, B. Ross	Farmer City.
Corbin, Arthur C.	Canton.
Cummings, Charles Clifford	Lena.
Custer, Everett Josiah Lynn Brown	Decatur.
Cutshaw, George William	Wilmington.

Dees, Theodore W.	Evanston.
De Mers, Octave Jay.	Assumption.
Durling, Raymond Kellam	Chicago.
Ewing, Theodore Madison	Neoga.
Flynn, Edgar Andrew	Bloomington.
Franke, George Edward	Newton.
Gilden, Charles Francis	Portland, Mich.
Glandon, John Herbert	Brooklyn.
Goveia, Lloyd Dace	Springfield.
Griffin, Edward Daniel	Chicago.
Haines, John Francis	Chicago.
Hatch, Leona Miles	Salt Lake City, Utah.
Hayes, Mark B.	Bloomington.
Herrick, William Albert	Beaver Dam, Wis.
Herter, Henry Anthony	Springfield.
Hooper, Bertram John	Antioch.
Hutton, Malcolm Lee	Elizabeth.
James, Benjamin J.	Litchfield.
Kauffman, Albert C.	Waterman.
Kelly, Michael James	Hokah, Minn.
Kimmel, Charles Henderson	Peoria.
King, Charles Aaron	Chicago.
Kissinger, Franklin Morley	Peoria.
Klucker, Albert Christ	Chicago.
Lee, Solomon	Chicago.
Lewman, Everet Andrew, B. S. (Purdue University), 1902	Montezuma, Ind.
Liska, John Joseph	Chicago.
Lyons, Lucian D.	Cuba.
Maloney, Thomas Raymond	Livingston, Mont.
Marshall, Jacob Clayton	Nokomis.
Marzano, James Vincenzo	Chicago.
Matey, Charles	Chicago.
McCracken, Lewis Logan	Greenville.
McVay, Roy H.	Cuba.
Mester, Arthur A.	Quincy.
Miller, Irvin Henry	Shawano, Wis.
Mottar, Samuel Mayo	Chicago.
Neis, Adelbert Dale	Ohio.
Palmer, Frank Henry	Chicago.
Partridge, Vaughn Leroy	Chicago.
Patterson, Millar	Toulon.
Pellettieri, John	Chicago.
Perkins, William Albert	Deerfield, Wis.
Pfaff, Jerome Henry	Centralia,
Phillips, Roscoe Conklin	Lostant.
Pirofalo, Joseph	Chicago.
Purcell, W. Edmund	Eldorado.
Rains, Ernst Kingdom	Chicago.
Reilly, Charles James	Aurora.
Roberts, William Lee	Pleasant Plains.
Rogers, Oscar Wild	Bellingham, Wash.
Sanford, Jacob Louis	DuQuoin.
Sawyer, Brewer Correll	Springfield.
Scharf, Charles Edward	Chicago.
Schaffarzick, Frederick William	Jefferson, Wis.
Schmid, Rose Phillipus	Chicago.
Schnitzler, Stephan	Chicago.
Scott, John Forrest	Toulon.
Seibert, Walter C.	Tamaroa.
Setz, Edwin Joseph	Lake Mills, Wis.

Sherman, Lewis John	Chicago.
Sommers, Robert	Springfield.
Speckhart, Carl	Quincy.
Steinkraus, Otto Louis	Bloomington.
Stieber, Edwin H.	Peoria.
Streit, Joseph Clemence	Chicago.
Strzoda, Robèrt Aloysius	Chicago.
Thesen, Ben	Quincy.
Vance, Arthur	Quincy.
Walker, Daniel Tedford	Dongola.
Walker, Ralph Henry	Kankakee.
Williams, Benjamin H.	Putnam.
Williams, George A.	Gardner.
Woltersdorf, Oscar	Chicago.
Zellinger, John William	Medford, Wis.
Zito, Rocco	Chicago.
Zur, Victor Edward	Chicago.

SPECIALS

Ames, Fred Wilson	Aurora.
Bellezza, Edgard	Chicago.
Bengtson, Einar Emanuel	Bloomington.
Cramer, Arthur William	Chicago.
Delabar, Henry Urban	Hull.
Edlund, Arthur	Chicago.
Feciura, Peter	Chicago.
Forrester, Earl D.	Hastings, Neb.
Franzman, Peter Joseph	Chicago.
Guinsberg, Morris Isadore	Chicago.
Harvey, John William	Springfield.
Hobart, Freedom E.	Gilman.
Horowitz, Solomon Samuel	Chicago.
Jansky, Frank Walter	Chicago.
Janssen, Martin Louis	Sterling.
Kahanovsky, Isadore M.	Chicago.
Kitowski, Isador Edward	Chicago.
Koehler, Gilbert Fred	Huntingburg, Ind.
Langdon, Arthur Daniel Difenbaugh	Peoria.
Lebin, William	Chicago.
Robins, Max	Chicago.
Serritella, Alfonso Michael	Chicago.
Sister Mary Benigna	Chicago.
Spongberg, Harry Siegfried	Rockford.
Terris, Henry	Chicago.
Trimble, Truman James	Ft. Collins, Colo.
Weihe, Henry	Ft. Wayne, Ind.
Werth, William A.	Oconto, Wis.
Wittenberg, Harry Levy	New York, N. Y.

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

Brown, Charles Wesley	Ruthville, Ga.
Cassin, Elmer Eldorado, Ph. G. (University of Illinois), 1907	Ogden, Utah.
Gunning, De Lancey Thomas	Wilmington.
Langenhan, H. August, Ph. G. (University of Illinois), 1908	Ableman, Wis.
Venn, Henry Leonard, A. B. (St. Ignatius College), 1906	Chicago.
Zimmerman, Clemence Robert	Peoria.

JUNIORS

Annenberg, Samuel Charles	Aurora.
Boutte, Matthew Virgil, B. S. (Fisk University), 1908	New Iberia, La.
Carpenter, Bryce	Cuba.
Proffitt, William	Hastings, Neb.
Rose, Francis Oscar	Grand Forks, N. D.
Snyder, Leslie	Galesburg.

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TO THE REGISTRAR
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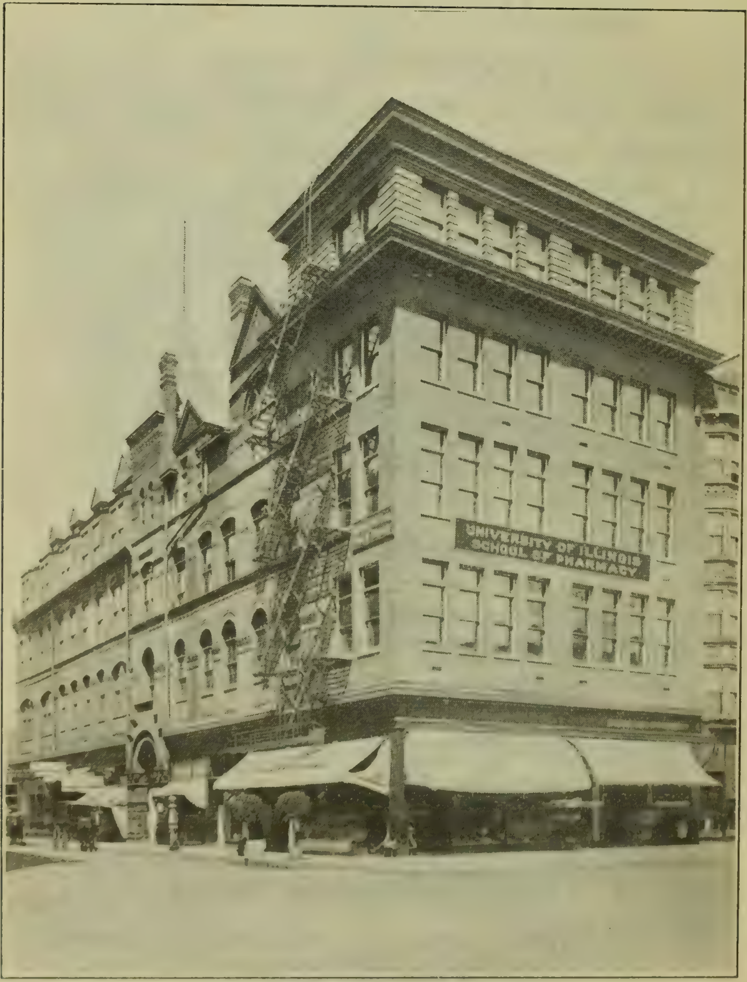
CALENDAR—1910-1911

1910.

Sept. 13.	Tuesday, 9. a. m., Entrance Examinations.
Sept. 19.	Monday, Registration Day.
Sept. 20.	Tuesday, 11 a. m., Junior Lectures begin.
Sept. 21.	Wednesday, 10 a. m., Senior Lectures begin.
Nov. 24.	Thursday, Thanksgiving Day, Holiday.
Dec. 17.	Saturday, 5 p. m., Holiday Recess begins.

1911.

Jan. 2.	Monday, 9 a. m., Instruction resumed.
Feb. 22.	Wednesday, Washington's Birthday, Holiday.
April 19.	Wednesday, Term for Candidates for Graduate in Pharmacy closes.
April 24	to 29, inclusive, Spring Recess—Pharmaceutical Chemist course.
April 27.	Thursday, 2 p. m., Commencement.
May 30.	Tuesday, Memorial Day, Holiday.
June 9.	Friday, Term for Candidates for Pharmaceutical Chemist closes.



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Chicago, Illinois

SESSION OF
1910 AND 1911

REGISTER FOR
1909 AND 1910

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1910/11

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1909-10.

Edmund J. James, Ph. D., LL. D., President of the University, Urbana.

Frederick Marion Goodman, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, 74 East Twelfth Street, Chicago.

Carl Svante Nicanor Hallberg, Ph. G., Professor of Theoretical and Practical Pharmacy, 74 East Twelfth Street, Chicago.

Albert Henry Clark, Ph. G., Acting Professor of Chemistry, 74 East Twelfth Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 74 East Twelfth Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Highland Park.

Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 74 East Twelfth Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, 74 East Twelfth Street, Chicago.

Henry August Langenhan, Ph. C., Instructor in Chemistry, 74 East Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of that kind west of the Allegheny mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904, the University secured for the School of Pharmacy the building located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government script for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance.

ANNOUNCEMENT

The fifty-first annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 20, 1910, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 27, 1911, on which day the graduating exercises will be held. The longer course will close June 9, 1911.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes more apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest and who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is thoroughly grounded in the sciences upon which the art of pharmacy is based, while well-equipped laboratories afford opportunity for acquiring the technical skill employed in identifying, preparing, testing and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry or in teaching. Not a few graduates continue their studies in medicine, for which the pharmaceutical course affords an excellent preparation.

THE COLLEGE BUILDING

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

The location is a good one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be secured within a short distance of the School.

THE QUALITATIVE ANALYTICAL LABORATORY

THE LECTURE HALLS

Are three in number and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

THE LABORATORIES

Are six in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students.

THE QUALITATIVE LABORATORY

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student the laboratory is provided with other apparatus for use by the students in common.

THE QUANTITATIVE ANALYTICAL LABORATORY

THE QUANTITATIVE LABORATORY

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is freely accessible to students.

THE LABORATORY FOR ADVANCED CHEMISTRY

Is 21 by 40 feet in size, has good light and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

THE LABORATORY FOR PHARMACOGNOSY

Is 26 by 51 feet in size, situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound microscopes magnifying, from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the

THE LABORATORY FOR PHARMACOGNOSY

Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and an extensive herbarium, which numbers several thousand specimens.

For class work in bacteriology additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators and the usual bacteriological equipment. A projection microscope has recently been added.

The Pharmaceutical Laboratory

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

THE GENERAL PHARMACEUTICAL LABORATORY

THE DISPENSING LABORATORY

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

THE LIBRARY

Adjoins the office on the third floor and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable supplement to these.

THE STUDENTS' ROOMS

A reading room and locker room on the third floor is provided with 238 steel lockers for the use of students in caring for coats, hats and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must furnish evidence of having completed one year of work in an accredited high school or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

ENTRANCE EXAMINATIONS

For the benefit of those candidates for admission to the course leading to the degree of Graduate in Pharmacy, who are unable to present credentials such as will satisfactorily meet the above requirements, entrance examinations will be given at the School on Tuesday, September 13, 1910, beginning at 9 a. m., and including the following subjects:

1. English Composition.
2. Elementary Algebra.
3. Either Elementary Latin or German.
4. Either Physiography or Physiology.

Candidates for admission by examination are required to pass in the four branches. Students are not permitted to make up entrance credits or conditions after entering classes.

ADVANCED STANDING

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

SPECIAL STUDENTS

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements may be admitted as special students *not candidates for a degree* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

COURSES OF INSTRUCTION

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days of each week and from twenty to twenty-one hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—JUNIOR YEAR

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are pre-

pared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY—JUNIOR YEAR

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ and equations, and the quantities entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of

the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY—JUNIOR YEAR

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, med-

ical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in Materia Medica taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

PHARMACY—SENIOR YEAR

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutc uses met with in dispensing, concluding with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptons requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters, as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins

with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises.

CHEMISTRY—SENIOR YEAR

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate

analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

MATERIA MEDICA—SENIOR YEAR

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding crytogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly given within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 26), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focus-

ing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are most generally used are selected for study. Much attention is given to the methods employed in the detection of adulterations in powdered drugs and practice is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each, with instruction on five days each week, and amounting to about thirty-three hours weekly or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 21 to 31), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After a thorough course in the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities such as arsenic, copper, lead, etc. The course concludes with a study of the detection of metallic elements and inorganic acids in the presence of organic compounds.

Text Book—Qualitative Analysis, Prescott & Johnson.

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Text Books—Quantitative Analysis Select Methods, Clowes & Coleman; Volumetric Analysis, Coblentz & Voricek.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes, organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination, in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

Text Books—Outline in Quantitative Analysis, Puckner; U. S. Pharmacopeia.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies. their chemical constitution, derivation, tests for identity and purity, incompatibilities together with their synonyms and trade names, these new remedies, especially the so-called "synthetics" are considered following the course in Organic Chemistry (Chemistry 5).

Text Books—New and Non-Official Remedies; American Medical Association.

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine are discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, also the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder and beverages, and are suplemented by special methods.

Pharmacy.—The work in Pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra-official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: Dermatology, Opthalmology, Laryngology. Gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of the most eminent practitioners.

The lectures also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws; Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine are also considered.

Text Book.—Physicians' Manual of the Pharmacopœia and the National Formulary, Hallberg and Salisbury.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed and due consideration is paid to the ferments, ptomaines, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air and water forms an important part of the course.

Text Book—Jordan's Bacteriology.

Vegetable Histology: The course in histology is preparatory to the course in microscopic pharmacognosy which follows it. Text Book—Stevens' Plant Anatomy.

Applied Microscopy.—A thorough study of important powdered drugs and spices, with their substitutes and adulterants, is made and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce is undertaken and instruction in the microscopic examination and identification of the urinary sediments: blood, pus, tubecasts and crystalline substances forms a part of the course.

Text Books.—Microscopical Methods, Gage; Microscopy of Vegetable Foods, Winton.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis such as constitutes a valuable supplement to the lectures in that branch.

Text Book.—Gray's School and Field Botany.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those titles of which are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *Sadtler and Coblentz's Pharmaceutical Chemistry, Puckner's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott and Johnston's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, Kimber's Physiology, Steven's Plant Anatomy, Students' Standard Dictionary, Dorland's or Gould's Medical Dictionary.

PHARMACY.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

The additional books required for the longer course are mentioned in the description of the curriculum, pages 31 to 37.

PRIZES.

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

The Biroth Prize.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

The Becker Prize.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing to be awarded to the senior student who attains the highest standing in pharmacy.

American Pharmaceutical Association Memberships.—Three such memberships are offered by members of the faculty: One of these prizes is awarded for second highest standing in pharmacy, one for excellence in chemistry, the third for excellence in pharmacognosy.

FEES AND EXPENSES.

Matriculation.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

Tuition Fees.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College, and to cover breakage or damage to such apparatus as well as needless or wilful damage to fixtures or building each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, together with a class charge for such apparatus as is used by the class in common, also a locker fee of one dollar for locker in the coatroom, if used by the student. The remainder will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *In event of the fees not being paid in full within ten days after the session begins an additional charge of five dollars will be made.*

Board and Lodging.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment.

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will range from five to ten dollars per week.

State Registration.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, accepted in lieu of examination for registration in about ten states and territories, and in several other states including New York and Pennsylvania, where graduation prerequisite laws are in force this school is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit as a part of the "practical experience in compounding drugs," required by the law, for the actual time of attendance at a school of pharmacy but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for matriculation blank, address.

W. B. DAY, *Actuary*.
Michigan Boulevard and Twelfth Street, Chicago, Ill.

GRADUATES, 1910

DEGREE OF PHARMACEUTICAL CHEMIST

Eck, Charles Patt	Chicago.
Rose, Francis Oscar	Grand Forks, N. D.
Stulik, Charles	Chicago.
Venn, Henry Leonard (Class of '09)	Chicago.
Zimmerman, Clemence Robert (Class of '09)	Peoria.

DEGREE OF GRADUATE IN PHARMACY

Annibale, Frank	Chicago.
Benson, John Simon	Joliet.
Berg, Conrad August	Chicago.
Bottom, Centennial John	East St. Louis.
Carpenter, Bryce	Cuba.
Cool, B. Ross	Farmer City.
Cummings, Charles Clifford	Lena.
Golombiewski, John Peter	Chicago.
Hindman, Finis	Herrin.
Josenhans, Paul Reinhold	Chicago.
Kauffman, Albert Clinton	Waterman.
Knox, William Pierce	Rensselaer, Ind.
Lyons, Lucian DeWayne	Cuba.
Lutz, Carl William	Ottawa.
Maloney, Thomas Raymond	Livingston, Mont.
Marshall, Jacob Clayton	Nokomis.
Marzano, Vincenzo	Chicago.
McVay, Roy H	Cuba.
Miller, Irvin Henry	Shawano, Wis.
Niesen, Theodore Bernard	La Salle.
Perkins, William Albert	Deerfield, Wis.
Phillips, Roscoe Conklin	Lostant.
Roth, Victor	Chicago.
Sanford, Jacob Louis	Duquoin.
Schaffarzick, Frederick William	Jefferson, Wis.
Schmid, Rose Phillipus	Chicago.
Scott, John Forrest	Toulon.
Siebert, Walter C	Tamaroa.
Thesen, Benjamin	Quincy.
Vance, Arthur B	Quincy.
Wiehn, John William	Westchester, N. Y.
Walter, Charles Elmer	Aledo.
Williams, Benjamin H	Putnam.
Williams, George Albert	Gardner.
Winborn, Elmer Norris	Detroit, Mich.
Blatt, Joseph Arnold (Class of 08)	Chicago
Crawford, Leslie Ray (Class of '08)	Nachusa.
Fidler, Delmar Nelson (Class of '08)	Watseka.
Ruesch, William Emanuel (Class of '08)	Joliet.
Arkins, James Elmer (Class of '09)	La Salle.
Halperin, Louis Evan (Class of '09)	Chicago.
Hibbe, Charles (Class of '09)	Chicago.
Comes, Urban Volpert (Class of '09)	Chicago.
Kremer, Victor Albert (Class of '09)	Chicago.
Fingl, Edward George (Class of '09)	Chicago.
Marks, Leon Arthur (Class of '09)	Chicago.
Mrazek, Charles Joseph (Class of '09)	Chicago.
Pisani, Vito (Class of '09)	Chicago.
Myerson, Edwin Sidney (Class of '09)	Chicago.

CERTIFICATES.

Anderson, John Berger	Peoria.
Bagge, Arthur Frederick	Aurora.
Baker, Roy Ernest	Chicago.
Brown, Rush Arthur	Sioux Falls, S. Dak.
Colson, Henry William	Chicago.
Corbin, Arthur C.	Canton.
Herrick, William Arthur	Beaver Dam, Wis.
Englund, Arthur Theodore	Escanaba, Mich.
Kremer, Frank, Jr.	Chicago.
Mottar, Samuel Mayo	Chicago.
Neis, Adelbert Dale	Ohio.
Niemeyer, Albert Philip	Quincy.
Peters, Henry Onno	Peoria.
Purcell, Warner Edmund	Eldorado.
Rogers, Oscar W.	Bellingham, Wash.

CLASS HONORS, EXCELLENCE IN SCHOLARSHIP.

Senior Class

Walter C. Seibert
Charles Stulik
Henry William Colson
Finis Hindman
Bryce Carpenter

Junior Class

Thomas Ross
Ben Lee Eicher
Reuben Lindstrom
Adolph Emil Anderson
Lou Archibald Watson

PRIZES

Walter C. Seibert	Becker Prize
Vincenzo Marzano	Biroth Prize
Henry William Colson	A. Ph. A. Membership in Pharmacy.
Finis Hindman	A. Ph. A. Membership in Pharmacognosy.
Charles Stulik	A. Ph. A. Membership in Chemistry.

LIST OF STUDENTS

Session 1909-1910

COURSE FOR GRADUATE IN PHARMACY

SENIORS

Anderson, John Berger	Peoria.
Annibale, Frank	Chicago.
Bagge, Arthur Frederick	Aurora.
Baker, Roy Ernest	Chicago.
Benson, John Simon	Joliet.
Berg, Conrad August	Chicago.
Bottom, Centennial John	E. St. Louis.
Brown, Rush Arthur	Sioux Falls, S. Dak.
Colson, Henry William	Chicago.
Cool, B. Ross	Farmer City.
Corbin, Arthur C	Canton.
Cummings, Charles Clifford	Lena.
Englund, Arthur Theodore	Escanaba, Mich.
Colombiewski, John Peter	Chicago.
Goveia, Lloyd Dace	Springfield.
Gunther, Edward William	La Salle.
Herrick, William Albert	Beaver Dam, Wis.
Hindman, Finis	Herrin.
Josenhans, Paul Reinhold	Chicago.
Kauffman, Albert Clinton	Waterman.
Knox, William Pierce	Rensselaer, Ind.
Kobylanski, John Francis	Chicago.
Kremer, Frank, Jr	Chicago.
Krupicka, Joseph	Chicago.
Lee, Solomon Leroy	Chicago.
Liska, John Joseph	Chicago.
Lyons, Lucian DeWayne	Cuba.
Lutz, Carl William	Ottawa.
Maloney, Thomas Raymond	Livingston, Montana.
Marshall, Jacob Clayton	Nokomis.
Marzano, James Vincenzo	Chicago.
McVay, Roy H	Cuba.
Miller, Irvin Henry	Shawano, Wis.
Mottar, Samuel Mayo	Chicago.
Neis, Adelbert Dale	Ohio.
Niemeyer, Albert Philip	Quincy.
Niesen, Theodore Bernard	La Salle.
Perkins, William Albert	Deerfield, Wis.
Peters, Henry Onno	Peoria.
Pfaff, Jerome Henry	Centralia.
Phillips, Roscoe Conklin	Lostant.
Pirofalo, Joseph	Chicago.
Purcell, Warner Edmund	Eldorado.
Rogers, Oscar Wild	Bellingham, Wash.
Roth, Victor	Chicago.
Rouleau, Francis Joseph	Manteno.
Sanford, Jacob Louis	Duquoin.
Schaffarzick, Frederick William	Jefferson, Wis.
Schmid, Rose Phillipus	Chicago.

Scott, John Forrest	Toulon.
Seibert, Walter C	Tamaroa.
Thesen, Benjamin	Quincy.
Vance, Arthur B	Quincy.
Walker, Daniel Tedford	Dongola.
Wiehn, John William	Westchester, N. Y.
Walter, Charles Elmer	Aledo.
Williams, Benjamin H	Putnam.
Williams, George Albert	Gardner.
Winborn, Elmer Norris	Detroit, Mich.

JUNIORS

Adams, Oliver Joseph	Grayville.
Almquist, Albert	Pecatonica.
Anderson, Adolph Emil	Moline.
Backus, Edwin John	La Porte, Ind.
Bazner, Gustave	Chicago.
Beley, Fred William	Livingston, Mont.
Benson, Harry Frederick	Springfield.
Bixby, John Elon	South Haven, Mich.
Bode, Carl F	Cairo.
Bower, Clifford Jerome	Aledo.
Bradley, Eugene Wilford	Chatham.
Brodd, Lawrence	Cambridge.
Burda, Stanley Walter	Chicago.
Burley, Bert Douglas	Chicago.
Charley, Michael Frank	La Salle.
Churchill, George Semple	Canton.
Cole, Arvelle Richard	St. Louis, Mo.
Costello, Vincent Lawrence	Toluca.
Curtis, Sidney Barber	Rock Falls.
Ensign, Horace Samuel	Ogden, Utah.
Finley, John Westley	Coles.
Flynn, Thomas Jerome	Bloomington.
Fortier, Arthur R	Chicago.
Frazier, James Virgil	Champaign.
Gericke, Julius Theodore	Lake Mills, Wis.
Gilbert, Joseph Anderson	Chicago.
Halfacre, Edward Joseph	Columbia, Tenn.
Haney, Ralph Herbert	Hampton, Iowa.
Harlin, Jess D	Livingston, Mont.
Hollingsworth, Fred H	Plankinton, S. D.
Hourigan, Bernard James	Smiths Falls, Ontario.
Hrejsa, Joseph Francis	Chicago.
Janz, Ernest Theodore	Chicago.
Johnson, Scoville Herman	Paris.
Kaczynska, Sabina	Chicago.
Keefrey, James Charles	Streator.
Kepner, Paul McCulloch	Port Royal, Pa.
Klitsche, Charles Henry, B. A. (St. Ignatius College, 1909)	Chicago.
Knotts, Noah William	Chatham.
Lee, Orval Wilkie	Decatur.
Lindstrom, Reuben	Rock Island.
Machenheimer, Oscar John	Shawnee, Okla.
Mark, Edwin John	Chicago.
Maynard, Henry Curtis	Oregon.
McNulty, John C	Chicago.

Milewski, Chester Albert	Chicago.
Moffett, Frederic Earle	Park Ridge
Miller, David Lyman	Carmi.
Montgomery, Ernest Elmer	Poseyville, Ind.
Nooner, Thompson Alexander, B. S. (Bethel College, 1907)	Sharon, Tenn.
Ostrowski, Bernice Antoinette	Hammond, Ind.
Pokorney, Michael Adalbert	Chicago.
Prendergast, Richard Joseph	Chicago.
Richmond, James Melville	La Belle, Mo.
Robb, Lanier James Humphrey	Heyworth.
Ross, Thomas	Coal City.
Sarginson, Rollo Bielby	Chesterfield.
Schildberg, Benjamin Samuel	Mendota.
Schreiber, Charles George	Chicago.
Seibert, Virgil Frederick	Ashley.
Setz, Edwin Joseph	Lake Mills, Wis.
Sieben, Harry Albert	Hastings, Minn.
Smith, Louis Gregory	Chicago.
Smith, William Adolphus	Joliet.
Stocks, Robert Harvey	Chicago.
Strzoda, Robert Aloysius	Chicago.
Watson, Lou Archibald	Ashley.
White, Harry Arthur	Wyoming.
White, William Sylvester, B. A. (Fisk University, 1908)	Chicago.
Withey, Clarence Arthur	Springfield.
Wittenberg, Harry Levy	Chicago.
Wruck, Otto Julius	Herscher.
Zajicek, Adolph	Chicago.
Zellinger, John William	Medford, Wis.
Zito, Rocco	Chicago.

SPECIALS

Barsanti, Alfred John	Berwyn.
Bracken, Leonard William	Chicago.
Bredenbeck, William Arthur	Quincy.
Delabar, Henry Urban	Hull.
Esackson, Charles Harvey	Chicago.
Garrity, Jeremiah Gerald	Spring Valley.
Heisel, Lawrence Martin	Pekin.
Helstrom, Andrew Berger	Chicago.
Janssen, Martin Louis	Sterling.
Jindra, Joseph	Chicago.
Johnson, Robert Frank	Peoria.
Kapoun, Joseph Anton	Chicago.
Kvitek, Louis Charles	Chicago.
Lyons, Nathan	Chicago.
Prims, George Theodore	Chicago.
Pieper, Louis Albert	Jacksonville.
Roberts, Raymond Ellis	Springfield.
Reid, French Baxter	Chicago.
Sammons, George	Towanda, Pa.
Schutte, Theodore Henry	Springfield.
Schmeling, Carl	Chicago.
Sister Mary Benigna	Chicago.
Spikings, Marshall L.	Winnemac.
Taylor, Roy Spencer	Chicago.
Turner, Hubert John	Danville.

Vavra Minerva	Chicago.
Vorsanger, Lillian	Chicago.
Winkleman, Edward Herman	Quincy.
Wisman, Ralph Illuminate	Quincy.
Zielinski, Theodore Joseph	Manistee, Mich.

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

Boutte, Matthew Virgil, B. S. (Fisk University, 1908)	New Iberia, La.
Carpenter, Bryce	Cuba.
Eck, Charles Patt	Chicago.
Proffitt, William E.	Hastings, Neb.
Rose, Francis Oscar	Grand Forks, N. D.
Stulik, Charles	Chicago.

JUNIORS

Eicher, Ben Lee	Chicago.
Foote, Clifford LeRoy	Elgin.
Heidbreder Herbert Henry	Quincy.
Lower, Roy Harry	Cairo.

COLLEGE OF MEDICINE

OF THE

University of Illinois

College of Physicians and Surgeons

OF CHICAGO

TERM OPENS SEPTEMBER 27, 1910

Admission requirements the equivalent of a four years' accredited high school course

Students permitted to specialize in electives

Commodious and up-to-date laboratory equipment

Clinical material abundant

FOR PARTICULARS ADDRESS

DR. FRANK B. EARLE, Secretary
Congress and Honore Sts

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1911/12

University of Illinois School of Pharmacy

(CHICAGO COLLEGE OF PHARMACY)

Announcement 1911 and 1912

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REGISTER FOR 1910 AND 1911

THE UNIVERSITY OF ILLINOIS
THE STATE UNIVERSITY
URBANA

Edmund J. James, Ph. D., LL. D., President

The University Includes the

GRADUATE SCHOOL.

COLLEGE OF LITERATURE AND ARTS (Ancient and Modern Languages and Literatures, History, Economics, Accountancy, Political Science, Sociology, Philosophy, Psychology, Education).

COLLEGE OF SCIENCE (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology).

COLLEGE OF ENGINEERING (Architecture, Civil Engineering, Electrical Engineering, Mechanical Engineering, Municipal and Sanitary Engineering, Railway Engineering).

COLLEGE OF AGRICULTURE (Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Household Science, Landscape Gardening, Veterinary Science).

COLLEGE OF LAW (Three years' course).

COLLEGE OF MEDICINE (College of Physicians and Surgeons, Chicago).

COLLEGE OF DENTISTRY (Chicago).

COURSES IN BUSINESS (General Business, Consular Service, Accountancy, Banking, Railway Administration, Journalism).

SCHOOL OF EDUCATION.

SCHOOL OF RAILWAY ENGINEERING AND ADMINISTRATION.

SCHOOL OF MUSIC (Voice, Piano, Violin).

SCHOOL OF LIBRARY SCIENCE.

SCHOOL OF PHARMACY (Chicago).

SUMMER SESSION of eight weeks.

UNITED STATES AGRICULTURAL EXPERIMENT STATION (Engineering Experiment Station, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey, State Geological Survey).

The Library contains 155,000 volumes and 45,000 pamphlets.

The University offers more than 600 Free Scholarships. For catalogues and information address

C. M. McCONN, Registrar
Urbana, Illinois

CALENDAR—1911-1912

1911

Sept. 12. Tuesday, 9 a. m., Entrance Examinations.

Sept. 18. Monday, Registration Day.

Sept. 19. Tuesday, 11 a. m., Junior Lectures begin.

Sept. 20. Wednesday, 10 a. m., Senior Lectures begin.

Nov. 30. Thursday, Thanksgiving Day, Holiday.

Dec. 21. Thursday, 5 p. m., Holiday Recess begins.

1912

Jan. 3. Wednesday, 9 a. m., Instruction resumed.

Feb. 12. Monday, Lincoln Day, Holiday.

Feb. 22. Thursday, Washington's Birthday, Holiday.

April 17. Wednesday, Term for Candidates for Graduate in Pharmacy closes.

April 21 to 28, inclusive, Spring Recess—Pharmaceutical Chemist course.

April 25. Thursday, 2 p. m., Commencement.

May 30. Thursday, Memorial Day, Holiday.

June 7. Friday, Term for Candidates for Pharmaceutical Chemist closes.

THE COLLEGE BUILDING

FIFTY-SECOND ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

Michigan Boulevard and Twelfth Street
Chicago, Illinois

SESSION OF 1911 AND 1912

REGISTER FOR 1910 AND 1911

CHICAGO - - - PUBLISHED BY THE UNIVERSITY

BOARD OF TRUSTEES

The Governor of Illinois
Charles S. Deneen, Springfield.
The President of the State Board of Agriculture
George A. Anthony, Kewanee
The Superintendent of Public Instruction
Frank G. Blair, Springfield.
Mrs. Carrie Alexander Bahrenberg, Belleville.
Fred L. Hatch, Spring Grove.
Albert P. Grout, Winchester.
Mrs. Laura B. Evans, Taylorville.
Arthur B. Meeker, Chicago.
Allen F. Moore, Monticello.
William L. Abbott, Chicago.
Mrs. Mary E. Busey, Urbana.
Otis W. Hoit, Geneseo.

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Secretary, Charles M. McConn, Urbana.
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Mrs. Mary E. Busey, Chairman.
A. F. Moore.
William L. Abbott.

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W. H. Gale, Chicago.
Harry W. Giese, Bloomington.
E. H. Ladish, Chicago.
F. Lueder, Peoria.

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1911/12

FACULTY

1910-11.

Edmund J. James, Ph. D., LL. D., President of the University, Urbana.

Frederick Marion Goodman, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, 74 East Twelfth Street, Chicago.

*Carl Svante Nicanor Hallberg, Ph. G., Professor of Theoretical and Practical Pharmacy.

Albert Henry Clark, Ph. G., Assistant Professor of Chemistry, 74 East Twelfth Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 74 East Twelfth Street, Chicago.

Clyde Mason Snow, Ph. G., Acting Professor of Pharmacy, 74 East Twelfth Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Highland Park.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, 74 East Twelfth Street, Chicago.

Henry August Langenhan, Ph. C., Instructor in Chemistry, 74 East Twelfth Street, Chicago.

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* Died October 22, 1910.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and the vicinity in 1859, for the purpose of advancing the practice of pharmacy. At that time there was no school of that kind west of the Allegheny Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured, and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time; it has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in phamacy, chemistry and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the School of Pharmacy the building located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the school has ever before enjoyed and the facilities for instruction have been increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance.

ANNOUNCEMENT

The fifty-second annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 19, 1911, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 25, 1912, on which day the graduating exercises will be held. The longer course will close June 7, 1912.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes more apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill employed in identifying, preparing, testing and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specializaation are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry or in teaching. Not a few graduates continue their studies in medicine, for which the pharmaceutical course affords an excellent preparation.

THE COLLEGE BUILDING

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

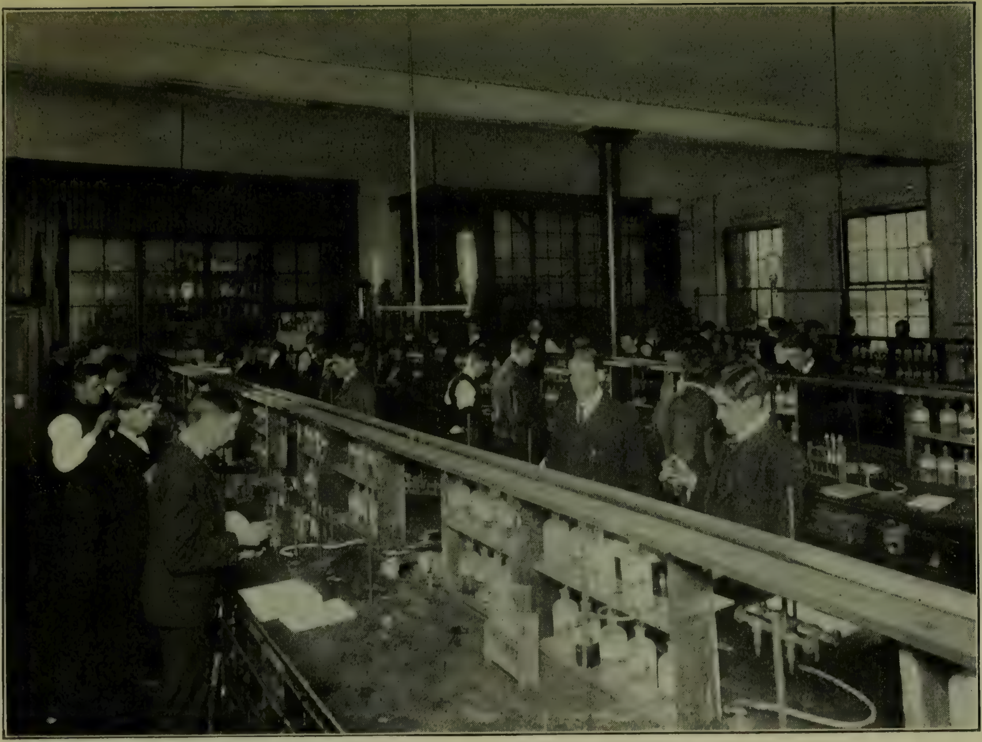
The location is a good one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be secured within a short distance of the School.

THE LECTURE HALLS

Are three in number and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred



THE QUALITATIVE ANALYTICAL LABORATORY

and fifty to two hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

THE LABORATORIES

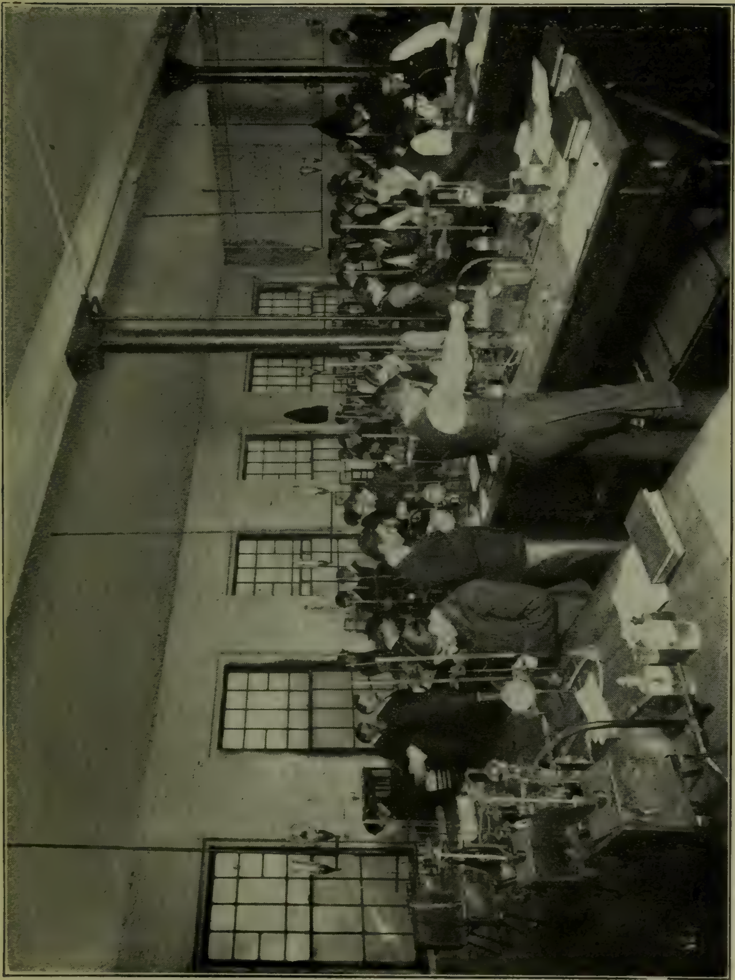
Are six in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students.

THE QUALITATIVE LABORATORY

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student the laboratory is provided with other apparatus for use by the students in common.

THE QUANTITATIVE LABORATORY

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the



THE QUANTITATIVE ANALYTICAL LABORATORY

building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has good light and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, is situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the phar-

THE LABORATORY FOR PHARMACOGNOSY

macopœias of France, Germany, Great Britain and Scandinavia. Other features are a number of illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

For class work in bacteriology additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators and the usual bacteriological equipment. A projection microscope is provided.

The Pharmaceutical Laboratory

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, files of prescriptions and a working library are also to be found here.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves

THE GENERAL PHARMACEUTICAL LABORATORY

is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

THE LIBRARY

Adjoins the office on the third floor and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books, complete files of the leading pharmaceutical periodicals and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

THE STUDENTS' ROOMS

A reading room and locker room on the third floor is provided with 238 steel lockers for the use of students in caring for coats, hats and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must furnish evidence of having completed one year of work in an accredited high school or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

ENTRANCE EXAMINATIONS

For the benefit of those candidates for admission to the course leading to the degree of Graduate in Pharmacy, who are unable to present credentials such as will satisfactorily meet the foregoing requirements, entrance examinations will be given at the School on Tuesday, September 12, 1911, beginning at 9 a. m., and including the following subjects:

1. English Composition.
2. Elementary Algebra.
3. Either Elementary Latin or German.
4. Either Physiography or Physiology.

Candidates for admission by examination are required to pass in the four branches. Students are not permitted to make up entrance credits or conditions after entering classes.

ADVANCED STANDING

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

SPECIAL STUDENTS

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements may be admitted as special students *not candidates for a degree* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

COURSES OF INSTRUCTION

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days of each week and from twenty to twenty-one hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—JUNIOR YEAR

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by

practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to

illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formularly, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physicians' prescriptions.

CHEMISTRY—JUNIOR YEAR

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use

of chemical symbols, formulæ and equations, and the quantities entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY

JUNIOR YEAR

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in Materia Medica taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence,

Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

PHARMACY—SENIOR YEAR

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal

and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters, as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises. Here, the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of these having been written by physicians who are yet in active practice.

CHEMISTRY—SENIOR YEAR

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of

the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

MATERIA MEDICA—SENIOR YEAR

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding crytogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly given within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 25), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are most generally used are selected for study. Attention is given to the methods employed in the detection of adulterations in powdered drugs and practice is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each. with instruction on five days each week, and amounting to about thirty-three hours weekly or a total of 2,30 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 21 to 31), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities, such as arsenic, copper, lead, etc. The course concludes with a study of the detection of metallic elements and inorganic acids in the presence of organic compounds.

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes, organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination, in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies, their chemical constitution, derivation, tests for identity and purity and incompatibilities, together with their synonyms and trade names, these new remedies, especially the so-called 'synthetics," are considered following the course in Organic Chemistry (Chemistry 5).

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine are discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, also the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder and beverages, and are supplemented by special methods.

Pharmacy.—The work in Pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: Dermatology, Ophthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of eminent practitioners.

The lectures also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws; Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine are also considered.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed and due consideration is paid to the ferments, ptomaines, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air and water forms a part of the course.

Vegetable Histology.—The course in histology is preparatory to the course in microscopic pharmacognosy which follows it.

Applied Microscopy.—A study of important powdered drugs and spices, with their substitutes and adulterants, is made and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce is undertaken and instruction in the microscopic examination and identification of the urinary sediments: blood, pus, tubecasts and crystalline substances forms a part of the course.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those titles of which are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson & Henderson's Elementary Chemistry, Clark's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott and Johnston's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Gage's Microscopical Methods, Davison's Human Body, Steven's Plant Anatomy, Students' Standard Dictionary.

PHARMACY.—*The Pharmacopoeia* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Arny's Pharmacy.

HONORS AND PRIZES.

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing to be awarded to the senior student who attains the highest standing in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Three such memberships are offered by members of the faculty: One of these prizes is awarded for second highest standing in pharmacy, one for excellence in chemistry, the third for excellence in pharmacognosy.

CLASS HONORS, in both the Junior and the Senior year, are awarded to such students as attain a general average of ninety percent or above.

FEES AND EXPENSES.

MATRICULATION.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the school, and to cover breakage or damage to such apparatus as well as needless or wilful damage to fixtures or building each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, together with a class charge for such apparatus as is used by the class in common, also a locker fee of one dollar for a locker in the coatroom, if used by the student. The remainder will be refunded at the close of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

PAYMENT OF FEES.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *In event of the fees not being* *paid in full within ten days after the session begins an additional charge of five dollars will be made.*

Board and Lodging.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to matriculate early.

Opportunities for Employment.

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will range from five to ten dollars per week.

STATE REGISTRATION.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, accepted in lieu of examination for registration in about ten states and territories, and in several other states, including New York and Pennsylvania, where graduation prerequisite laws are in force, this school is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit as a part of the "practical experience in compounding drugs," required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. DAY, *Actuary.*
74 E. Twelfth St., corner Michigan Blvd., Chicago, Ill.

GRADUATES, 1911

DEGREE OF PHARMACEUTICAL CHEMIST

Annenberg, Samuel Charles	Aurora.
Colson, Henry William	Chicago.
Foote, Clifford LeRoy	Elgin.
Lower, Roy Harry	Cairo.
Carpenter, J. Bryce (Class of 1910)	Grand Junction, Colo.

DEGREE OF GRADUATE IN PHARMACY

Anderson, Adolph Emil	Moline
Backus, Edwin John	LaPorte, Ind.
Bode, Carl F.	Cairo.
Bower, Clifford Jerome	Aledo.
Boutte, Matthew Virgil	New Iberia, La.
Burley, Bert Douglas	Chicago.
Churchill, George Semple	Canton.
Eicher, Ben Lee	Chicago.
Fingl, Anton William	Chicago.
Flynn, Edgar Andrew	Bloomington.
Franke, George Edward	Newton.
Goveia, Lloyd	Springfield.
Griffin, Edward Daniel	Chicago.
Halfacre, Edward Joseph	Columbia, Tenn.
Heidbreder, Herbert Henry	Quincy.
Hourigan, Bernard James	Smiths Falls, Ont.
Janz, Ernest Theodore	Chicago.
Keefrey, James Charles	Streator.
Lindstrom, Reuben Leonard	Rock Island.
Machenheimer, Oscar John	Shawnee, Okla.
Mark, Erwin John	Chicago.
Nooner, Thompson Alexander	Sharon, Tenn.
Pokorney, Michael Adalbert	Chicago.
Sarginson, Rollo Bielby	Chesterfield.
Schildberg, Benjamin Samuel	Mendota.
Schreiber, Charles George	Chicago.
Setz, Edwin Joseph	Lake Mills, Wis.
Sieben, Harry Albert	Hastings, Minn.
Smith, William Adolphus	Joliet.
Watson, Lou Archibald	Ashley.
White, Harry Arthur	Wyoming.
Wruck, Otto J. B.	Herscher.
Zellinger, John William	Medford, Wis.
Eck, Charles Patt (Class of '09)	Chicago.
Merrill, Joseph Alfred (Class of '09)	Chicago.
Oberg, Clarence Julius (Class of '09)	Chicago.
Ratajik, Felix James (Class of '09)	Chicago.
Rosenstone, Rutherford G. (Class of '09)	Cambridge.
Stulik, Charles Kraus (Class of '09)	Chicago.
Anderson, John Berger (Class of '10)	Peoria.
Bagge, Arthur Frederick (Class of '10)	Aurora.
Baker, Roy Ernest (Class of '10)	Chicago.

Brown, Rush Arthur (Class of '10)	Sioux Falls, S. Dak.
Corbin, Arthur C. (Class of '10)	Canton.
Herrick, William Arthur (Class of '10)	Beaver Dam, Wis.
Mottar, Samuel May (Class of '10)	Chicago.
Niemeyer, Albert Philip (Class of '10)	Quincy.
Peters, Henry Onno (Class of '10)	Peoria.
Purcell, Warner Edmund (Class of '10)	Eldorado.

CERTIFICATES

Clarke, Stanley	Chicago.
Hrejsa, Joseph Francis	Chicago.
Kepner, Paul McCulloch	Port Royal, Pa.
Lee, Orval Wilkie	Decatur
Logan, Chester Arthur	Elizabeth
Montgomery, Ernest Elmer	Poseyville, Ind.
Ross, Thomas	Coal City.
White, William Sylvester	Chicago.

CLASS HONORS, EXCELLENCE IN SCHOLARSHIP

Senior Class

Thomas Ross.
Lou A. Watson.
Reuben L. Lindstrom.
Adolph E. Anderson.
Anton W. Fingl.
James C. Keefrey.
Benjamin S. Schildberg.

Junior Class

Leon F. Levy.
John A. Dorjahn.
Jacob Goldstein.
Roy W. Harrell.
Cloyde W. Snyder.

PRIZES

Thomas Ross	Becker Prize
Lou A. Watson	Biroth Prize
Anton W. Fingl	Pharmacy Prize
Benjamin S. Schildberg	A. Ph. A. Membership in Pharmacognosy
Reuben Lindstrom	A. Ph. A. Membership in Chemistry

LIST OF STUDENTS

Session 1910-1911

COURSE FOR PHARMACEUTICAL CHEMIST.

SENIORS.

Annenberg, Samuel Charles	Aurora
Boutte, Matthew Virgil, B. S. (Fisk University, 1908)	New Iberia, La.
Colson, Henry William	Chicago.
Eicher, Ben Lee	Chicago.
Foote, Clifford LeRoy	Elgin.
Heidbreder, Herbert Henry	Quincy.
Lower, Roy Harry	Cairo.

JUNIORS.

Baird, Harold Glen	Harvard.
Bond, Grover Cleveland	Mt. Vernon.
Crawford, Abiram Lee	Genoa.
*Sinclair, Scott	Woodstock

COURSE FOR GRADUATE IN PHARMACY.

SENIORS.

Anderson, Adolph Emil	Moline.
Backus, Edwin John	LaPorte, Ind.
Bode, Carl F.	Cairo.
Bower, Clifford Jerome	Aledo.
Brodd, Lawrence	Cambridge.
Burley, Bert Douglas	Chicago.
Carthan, William Arthur, A. B. (Morris Brown College, 1902)	East Macon, Ga.

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*Did not attend.

Churchill, George Semple	Canton.
Clarke, Stanley	Chicago.
Fingl, Anton William	Chicago.
Flynn, Edgar Andrew	Bloomington.
Franke, George Edward	Newton.
Goveia, Lloyd	Springfield.
Griffin, Edward Daniel	Chicago.
Halfacre, Edward Joseph	Columbia, Tenn.
Hooper, Bertram John	Antioch.
Hourigan, Bernard James	Smiths Falls, Ontario.
Hrejsa, Joseph Francis	Chicago.
Janz, Ernest Theodore	Chicago.
Keefrey, James Charles	Streator.
Kepner, Paul McCulloch	Port Royal, Pa.
Lee, Orval Wilkie	Decatur.
Lee, Solomon Leroy	Chicago.
Lindstrom, Reuben L.	Rock Island.
Logan, Chester Arthur	Elizabeth.
Machenheimer, Oscar John	Shawnee, Oklahoma.
Mark, Erwin John	Chicago.
Montgomery, Ernest Elmer	Poseyville, Ind.
Nooner, Thompson Alexander, B. S. (Bethel College, 1907)	Sharon, Tenn.
*Ostrowski, Bernice	Hammond, Ind.
Pokorney, Michael Adalbert	Chicago.
Ross, Thomas	Coal City.
Sarginson, Rollo Bielby	Chesterfield.
Schildberg, Benjamin Samuel	Mendota.
Schreiber, Charles George	Chicago.
Setz, Edwin Joseph	Lake Mills, Wis.
Sieben, Harry Albert	Hastings, Minn.
Smith, William Adolphus	Joliet.
Watson, Lou Archibald	Ashley.
White, Harry Arthur	Wyoming.
White, William Sylvester, B. A. (Fisk University, 1908)	Chicago.
Wruck, Otto J. B.	Herscher.
Zellinger, John William	Medford, Wis.

JUNIORS.

Balmer, Fred Bernard	Chicago.
Barnett, Thomas John	Chicago.

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*Did not attend.

Bixby, John Elon	South Haven, Mich.
Bonus, Kenneth C	Oak Park.
Bossman, Louis Arthur	Horicon, Wis.
Carvelli, John	Chicago.
Chapman, Harold Potter	Chicago.
Chiprin, Samuel	Chicago.
*Curtis, Sidney Barber	Rock Falls.
Dorjahn, John August	Blue Island.
*Eicholtz, Guy Wilbur	Chicago.
Ferrer, Angelo M	Ponce, Pto. Rico.
Finnigan, James Howard	Springfield.
Galloway, Jesse H	Chicago.
Gibbs, Frank E	Clinton, Iowa.
Goldstein, Jacob	Cairo, Egypt.
Gorny, Stephen	Chicago.
Gouwens, Peter	Chicago.
Gross, Benjamin C	Elgin.
Gueno, William T	Pass Christian, Miss.
†Gunthorp, James M	Chicago.
Hansen, Harold Walter	Lake Mills, Wis.
Harrell, Roy William	Norris City.
Hobart, Freedom E	Gilman.
Kasprzyk, Michael	Chicago.
Kidd, Arthur M	Chicago.
Koch, Harvey H	Chicago.
Koch, Lawrence	LaPorte, Ind.
Landaker, Walter	Pontiac.
Lindeman, Frank Henry	Farmer City.
Luedtke, Edward F. C	LaPorte, Ind.
Martin, John F	Chicago.
McNeill, Roy	Herrin.
Miller, David Lyman	Carmi.
Miller, Ralph Isaac	Grand Island, Neb.
Milewski, Chester A	Chicago.
*Picard, William L	Valparaiso, Ind.
*Polek, Andrew	Chicago.
Radomski, Leo Roman	Chicago.
Schmitt, Roland G	Warsaw.
Schulz, Walter Carl	Chicago.
Seibert, Virgil Frederick	Ashley.
Stinson, William James	Hinsdale.
Stoebig, Louis E	Chicago.

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*Did not attend.

†Withdrew.

Stocks, Robert Harvey	Chicago.
Sullivan, William Clark	Flanagan.
Swiecinski, Walter	Chicago.
Tomaszewski, Maryan	Hammond, Ind.
Uhl, Charles	Livingston, Mont.
Valentino, John F. L.	Chicago.
Van Nugteren, Frank William	Chicago.
Vorsanger, Lillian	Chicago.
Wach, Charles Edward	Chicago.
Warzynski, Joseph A.	Chicago.
Wixsom, Lee A.	Marion, Ind.
Worley, Hayden Henry	Chicago.
Zarobsky, Otto Frank	Chicago.
Zajicek, Adolph	Chicago.

SPECIALS

SECOND YEAR.

Almquist, Albert	Pecatonica.
Bredenbeck, William Arthur	Quincy.
Helstrom, Andrew Berger	Chicago.
Pieper, Louis Albert	Jacksonville.
Wisman, Ralph Illuminate	Quincy.

FIRST YEAR.

Baird, Frank, Jr.	Harvard.
Barsanti, Alfred John	Berwyn.
Basile, Frank Gabriel	Chicago.
Beilin, Harry	Chicago.
Bills, George Sanford	Chicago.
Carlson, Edwin Herbert	DeKalb.
Cooper, Albert Ernest	Elgin.
Copeland, Kern Hadley	Grand Junction, Colo
Elzi, Alois Henry	Quincy.
*Fick, Vern I. O. F.	Chicago.
Fiedler, Walter Conrad	Chicago.
Flynn, George	Hammond, Ind.
Forster, Isidore Anthony	Chicago.
Frish, Otto Edmund	Chicago.

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*Did not attend.

Grady, John Frank	Rock Falls.
Granzig, William August	Chicago.
Johnson, Roy A. E	Chicago.
Kamm, George Erwin	Chicago.
Klein, John Paul	Evanston.
Levy, Leon Frank	Ottawa.
Linz, Rudolph G	Quincy.
Mankowski, Stanley Aloysius	Chicago.
Meyer, Joseph James	Chicago.
Myers, John Moran	Chicago.
Nesnidal, Anthony	Chicago.
Norris, Melvin Lloyd	Berwyn.
O'Brian, Robert Jackson	Peru, Ind.
Patrick, Thomas Sterling	Iola.
Patrick, Francis Elkin	Iola.
Pellman, Walter Herman	Quincy.
Rosenbaum, Frank M	Champaign.
Sklodowski, Adam M	Cicero.
Snyder, Cloyde W	Astoria.
*Stewart, John A	Chicago.
Stewart, William Luther	Chenoa.
Tauber, Himen Herman	Chicago.
Taylor, Harry A	Antioch.
Thesen, Harry J. A	Quincy.
Tristano, Michael	Chicago.
Vavra, Minerva	Chicago.
Warczak, John George	Chicago.
Warner, Charles M	Springfield.
Warner, Alfred J	Springfield.

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*Did not attend.

INDEX.

Page

Admission ... 18
Advanced Standing ... 19
Announcement of the Session ... 8
Bacteriology, Course in ... 34
Botany, Courses in ... 24, 35
Building, Description of ... 10
Calendar of the School Year ... 1
Chemistry, Courses in ... 23, 28, 31
Course, Shorter, for Ph. G. ... 21
Course, Longer, for Ph. C. ... 31
Degrees ... 41-42
Employment, Opportunities for ... 39
Entrance Examination ... 19
Entrance Requirements ... 19
Entrance as a Special Student ... 20
Equipment, Description of ... 10, 18
Fees ... 37
Food and Drug Analysis ... 31, 32, 33
Graduation Requirements ... 20
History ... 6
Library ... 18
Materia Medica, Courses in ... 24, 29
Pharmacognosy, Courses in ... 21, 28, 33
Pharmacy, Courses in ... 21, 26, 33
Physiology, Courses in ... 25
Prizes ... 36
Requirements for Entrance ... 19
Requirements for Graduation ... 20
Students, List of ... 43, 47
Text Books ... 36

191

COLLEGE OF MEDICINE

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(CHICAGO COLLEGE OF PHARMACY)

Announcement 1912 and 1913

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CALENDAR—1912-1913

1912

Sept. 10.	Tuesday, 9 a. m., Entrance Examinations
Sept. 16.	Monday, Registration Day
Sept. 17.	Tuesday, 11 a. m., Junior Lectures begin
Sept. 18.	Wednesday, 11 a. m., Senior Lectures begin
Nov. 28.	Thursday, Thanksgiving Day. Holiday
Dec. 21.	Saturday, 5 p. m., Holiday Recess begins

1913

Jan. 6.	Monday, 9 a. m., Instruction resumed
Feb. 12.	Wednesday, Lincoln Day, Holiday
Feb. 22.	Saturday, Washington's Birthday, Holiday
April 16.	Wednesday, Term for Candidates for Graduate in Pharmacy closes
April 20 to 27, inclusive,	Spring Recess—Pharmaceutical Chemist course
April 24.	Thursday, 2 p. m., Commencement
May 30.	Friday, Memorial Day, Holiday
June 6.	Friday, Term for Candidates for Pharmaceutical Chemist closes

THE COLLEGE BUILDING

FIFTY-THIRD ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

Michigan Boulevard and Twelfth Street

Chicago, Illinois.

SESSION OF 1912 AND 1913

REGISTER FOR 1911 AND 1912

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1912/13

FACULTY

1911-1912.

EDMUND J. JAMES, Ph. D., LL. D., President of the University, Urbana

* FREDERICK MARION GOODMAN, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, 74 East Twelfth Street, Chicago

ALBERT HENRY CLARK, Ph. G., Assistant Professor of Chemistry, 74 East Twelfth Street, Chicago

WILLIAM BAKER DAY, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 74 East Twelfth Street, Chicago

CLYDE MASON SNOW, Ph. G., Assistant Professor of Pharmacy, 74 East Twelfth Street, Chicago

HENRY HORACE ROGERS, Ph. B., M. D., Lecturer on Physiology, Highland Park

EDMUND NORRIS GATHERCOAL, Ph. G., Instructor in Pharmacognosy, 74 East Twelfth Street, Chicago

HENRY WILLIAM COLSON, Ph. C., Instructor in Chemistry, 74 East Twelfth Street, Chicago

BEN LEE Eicher, Ph. G., Instructor in Pharmacy, 74 East Twelfth Street, Chicago

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* On leave of absence.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and the vicinity in 1859, for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Allegheny Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured, and a course of lectures instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of the teaching. and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time; it has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry, and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical "School of Pharmacy" of the University of Illinois. In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the School of Pharmacy the building located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the school has ever before enjoyed and the facilities for instruction have been increased.

ANNOUNCEMENT

The fifty-third annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 17, 1912, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 24, 1913, on which day the graduating exercises will be held. The longer course will close June 6, 1913.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

The location is a good one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue, and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city.

The Lecture Halls

Are three in number and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

THE LABORATORIES

Are six in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students.

THE QUALITATIVE LABORATORY

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

THE QUANTITATIVE LABORATORY

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with workstands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use.

THE LABORATORY FOR ADVANCED CHEMISTRY

Is 21 by 40 feet in size, has good light, and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

THE LABORATORY FOR PHARMACOGNOSY

Is 26 by 51 feet in size, is situated on the third floor, is well lighted, and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and

THE LABORATORY FOR PHARMACOGNOSY

fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britian, and Scandinavia. Other features are a number of illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

For class work in bacteriology additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators, and the usual bacteriological equipment. A projection microscope is provided.

THE PHARMACEUTICAL LABORATORY

Occupies a room 43 by 51 feet in size, situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, metric weights, etc. Collections of chemical and pharmaceutical products and files of prescriptions are also to be found here.

THE DISPENSING LABORATORY

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size. It is fitted with an equipment designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

THE LIBRARY

Adjoins the office on the third floor and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

THE STUDENTS' ROOMS

A reading room and locker room on the third floor is provided with 238 steel lockers for the use of students in caring for coats, hats and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must furnish evidence of having completed one year of work in an accredited high school or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

ENTRANCE EXAMINATIONS

For the benefit of those candidates for admission to the course leading to the degree of Graduate in Pharmacy, who are unable to present credentials such as will satisfactorily meet the foregoing requirements, entrance examinations will be given at the School on Tuesday, September 10, 1912, beginning at 9 a. m., and including the following subjects:

1. English Composition.
2. Elementary Algebra.
3. Either Elementary Latin or Elementary German.
4. Either Physiography or Physiology.

Candidates for admission by examination are required to pass in the four branches. Students are not permitted to make up entrance credits or conditions after entering classes.

ADVANCED STANDING

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this school.

SPECIAL STUDENTS

Registered pharmacists, assistants, or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

COURSE OF INSTRUCTION

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—JUNIOR YEAR

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

1*a*. *Pharmaceutical Arithmetic*:—Attention is given to the several phases of pharmaceutical arithmetic: the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; a review of common and decimal fractions with problems and demonstrations, and drills in percentage and alligation as applied to pharmaceutical preparations.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications are considered.

3. *Galenical Preparations of the United States Pharmacopoeia and National Formulary*:—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibted at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physicians' prescriptions.

CHEMISTRY—JUNIOR YEAR

1. *Theoretical Chemistry.*—As an introduction to the subject, the formation of new substances, combustion, reduction, and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions, the laws of Boyle, of Charles, and Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ, and equations, and the quantities entering into chemical reactions. The general properties of acids, bases, and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation, and the ions. These lectures are supplemented

with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such manner as to explain more fully the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the metals, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY

JUNIOR YEAR

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in

the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in materia medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses, and doses of each receive due attention.

Toward the close of the term a number of lectures are devoted to the subject of toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in materia medica taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and the poisons which he handles. Hence, physiology has become recognized as a regular part of the curriculum.

THE PHARMACY L

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URE HALL

ICAL LABORATORY

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room, and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned, and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

PHARMACY—SENIOR YEAR

7. *Extractive Preparations.*—The simplest forms, infusions, and decoctions are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations being illustrated and their relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses

and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity, and strength, and their pharmaceutical preparations, medicinal uses, and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols, and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, and posology, and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins; also the manufacture of scaled and granular salts and the preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates, and pills with various coatings. Those for external use, including ointments, plasters, and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity, and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises. Here the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of which have been written by physicians who are yet in active practice.

CHEMISTRY—SENIOR YEAR

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, the principles of gravimetric analysis are discussed and opportunity is afforded for practice in gravimetic analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic

substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

Materia Medica—Senior Year

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits and products, the commercial history of the parts employed, proximate principles, preparations, therapeutic action, and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given to all drugs included in the pharmacopœia and national formulary.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the junior year (page 23), this laboratory study closely following the lectures on materia medica.

Microscopy.—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are most generally used are selected for study. Attention is given to the methods employed in the detection of adulterations in powdered drugs and practice is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each, with instruction on five days each week, amounting to about thirty-three hours weekly or a total of 2 300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 18 to 32), the following subjects:

Qualitative Analysis.--The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis, and molecular concentration or mass action to analytical methods. After the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities, such as arsenic, copper, lead, etc. The course concludes with a study of the metals including many of the less common ones.

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination, in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies, their chemical constitution, derivation, tests for identity and purity, and incompatibilities, together with their synonyms and trade names, particular attention is given these new remedies, especially the so-called "synthetics," as a part of the course in organic chemistry (Chemistry 5).

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine is discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, and the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder, and beverages, and are supplemented by special methods.

Pharmacy.—The work in Pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: Dermatology, Ophthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of eminent practitioners.

The lectures also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws; Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine are also considered.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure, and classification, together with their chemical composition, vital phenomena, and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed, and due consideration is paid to the ferments, ptomaines, toxins, and antitoxins. The action of various antiseptics, disinfectants, and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods ofcl eaning and sterilizing glassware and nutrient media, the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, colonies, the technic of cover-glass slips of the basic forms of bacteria and their morphologic characteristics.

Bacteriologic methods in the examination of milk, air and water form a part of the course.

Vegetable Histology.—The course in histology is preparatory to the course in microscopic pharmacognosy which follows it.

Applied Microscopy.—A study of important powdered drugs and spices, with their substitutes and adulterants, is made, and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers, and textiles met with in commerce is undertaken, and instruction in the microscopic examination and identification of the urinary sediments; blood, pus, tubecasts, and crystalline substances, forms a part of the course.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis.

GENERAL INFORMATION

TEXT BOOKS AND WORKS OF REFERENCE

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable: he is obliged to provide himself with all those titles of which are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson* & *Henderson's Elementary Chemistry, Clark's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott & Johnson's Qualitative Analysis. Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Gage's Microscopical Methods. Davison's Human Body, Steven's Plant Anatomy.

PHARMACY.—*The Pharmacopoeia* United States or National Standard Dispensatory. Remington's Practice of Pharmacy. Arny's Pharmacy.

HONORS AND PRIZES

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BECKER PRIZE.—The Bishop-Babcock-Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Three such memberships are offered by members of the faculty: One of these prizes is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

CLASS HONORS, in both the Junior and the Senior year, are awarded to such students as attain a general average of ninety percent or above.

FEES AND EXPENSES

MATRICULATION.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the student to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the school and to cover breakage or damage to such apparatus as well as needless or wilful damage to fixtures or building, each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar for a locker in the coatroom, if used by the student. The remainder will be refunded at the end of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

PAYMENT OF FEES.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *In event of the fees not being paid in full within ten days after the session begins an additional charge of five dollars will be made.*

BOARD AND LODGING.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

BOOKS.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience. The compensation for such employment will range from five to ten dollars per week.

STATE REGISTRATION

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, accepted in lieu of examination for registration in about ten states and territories; and in several other states, including New York and Pennsylvania, where graduation prerequisite laws are in force, this school is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. DAY, *Actuary*
74 E. Twelfth St., Chicago, Ill.

DEGREES, 1912

PHARMACEUTICAL CHEMIST

Clarke, Stanley C.	Chicago
Eicher, Ben Lee—(Class of 1911)	Chicago
Heidbreder, Herbert Henry—(Class of 1911)	Quincy

GRADUATE IN PHARMACY

Bixby, John Elon	Chicago
Bond, Grover Cleveland	Mt. Vernon
Bossmann, Louis Arthur	Horicon, Wis.
Carvelli, John	Chicago
Dorjahn, John August	Blue Island
Ferrer, Angelo Maria	Ponce, Porto Rico
Finnigan, James Howard	Springfield
Galloway, Jesse Harold	Chicago
Goldstein, Jacob	Cairo, Egypt
Gorny, Stephen S.	Chicago
Grosse, Benjamin Carl	Elgin
Harrell, Roy William	Norris City
Kasprzyk, Michael George	Chicago
Kidd, Arthur Milne, Jr.	Morrison
Krupicka, Joseph	Chicago
Lindeman, Frank Henry	Farmer City
Owen, Ernest Preston	Anna
Seibert, Virgil Frederick	Ashley
Stinson, William James	Hinsdale
Stocks, Robert Harvey	Chicago
Swiecinski, Walter	Chicago
Valentino, John Ludovic	Chicago
Warzynski, Joseph A.	Chicago
Worley, Haydn Henry	Toulon
Englund, Arthur Theodore—(Class of 1910)	Escanaba, Mich.
Neis, Adelbert Dale—(Class of 1910)	Ohio
Rogers, Oscar W.—(Class of 1910)	Bellingham, Wash.
Kremer, Frank, Jr.—(Class of 1910)	Chicago
Kepner, Paul McCulloch—(Class of 1911)	Port Royal, Pa.
Lee, Orval Wilkie—(Class of 1910)	Decatur
Logan, Chester Arthur—(Class of 1911)	Elizabeth
Montgomery, Ernest Elmer—(Class of 1911)	Poseyville, Ind.
Ross, Thomas—(Class of 1911)	Coal City

CLASS HONORS, EXCELLENCE IN SCHOLARSHIP

SENIOR CLASS PRIZES

Fred B. Balmer	Becker Prize
John A. Dorjahn	Biroth Prize
Cloyde W. Snyder	A. Ph. A. Membership in Pharmacy
Isidore A. Forster	A. Ph. A. Membership in Pharmacognosy
Jacob Goldstein	A. Ph. A. Membership in Chemistry

JUNIOR CLASS HONORS

Edward T. Donahue
William J. Richards
Edgar P. Heidbreder
Lawson J. Cooke
Alfred M. Lukasek
Talmage E. Kisner
George Stulik
Grover C. Arnold
Edward Luckiesh
Harold V. Cleveland
Alfred C. Gragg
William A. Lee
Albert W. Logan

LIST OF STUDENTS

SESSION 1911-1912

COURSE FOR PHARMACEUTICAL CHEMIST

SENIOR

Clarke, Stanley C	Chicago

JUNIORS

*Bradel, Thaddeus	Chicago
Heidbreder, Edgar Philip	Quincy
Snyder, Forrest Omo	Chicago
Vann, James Silas	Chicago

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*Did not attend.

COURSE FOR GRADUATE IN PHARMACY

SENIORS

Balmer, Fred Bernard	Chicago
Bixby, John Elon	Chicago
Bond, Grover Cleveland	Mt. Vernon
Bonus, Kenneth Charles	Oak Park
Bossman, Louis Arthur	Horicon, Wis.
Carvelli, John	Chicago
Dorjahn, John August	Blue Island
Ferrer, Angelo Maria	Ponce, Porto Rico
Finnigan, James Howard	Springfield
Galloway, Jesse Harold	Chicago
Goldstein, Jacob	Cairo, Egypt
Gorny, Stephen	Chicago
Grosse, Benjamin Carl	Elgin
Hansen, Harold Walter	Lake Mills, Wis.
Harrell, Roy William	Norris City
Hooper, Bertram John	Lake Villa
Kasprzyk, Michael George	Chicago
Kidd, Arthur Milne, Jr	Morrison
Koch, Lawrence Martin	LaPorte, Ind.
Krupicka, Joseph	Chicago
Lindeman, Frank Henry	Farmer City
Luedtke, Edward	LaPorte. Ind,
McNeill, Roy	Herrin
Miller, Ralph Isaac	Grand Island, Neb.
Owen, Ernest Preston	Anna
Schulz, Walter Carl	Chicago
Seibert, Virgil Frederick	Ashley
Stinson, William James	Hinsdale
Stocks, Robert Harvey	Chicago
Swiecinski, Walter	Chicago
Tomaszewski, Maryan	Hammond, Ind.
Valentino, John Ludovic	Chicago
Vorsanger, Lillian	Chicago
Warzynski, Joseph Albert	Chicago
Worley, Haydn Henry	Toulon

JUNIORS

Anderson, Raymond	Americus, Kans,
Arnold, Grover Cleveland	Astoria
†Beaman, Gertrude	Joliet
Bender, Clarence Riess	Shannon
Bennett, John Gilbert	Norris City

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† Withdrew

Blumenschein, Harry	Washington
Borucki, Edward Anthony Felix	Chicago
Buckman, George Edward	Chicago
Chapman, Harold Potter	Chicago
Clark, Francis Edward	Peoria
Cleveland, Harold Vincent	Grayslake
Cook, Albert	Terre Haute, Ind.
Cooke, Lawson Jacob	Goodland, Ind.
Crawford, Abiram Lee	Genoa
Cunradi, Rudolph	Chicago
Curtis, Sidney Barber	Rock Falls
Davenport, Royal	Calvin
Davidson, George Edward	E. St. Louis
Donahue, Edward Thomas	Chicago
Driggot, Eggan William	Chicago
DuBois, William Bonheur	Jonesboro, Ark.
Eicholtz, Guy Wilbur	Chicago
Fisk, Alvah Court	Abington
Fisler, Oscar	Chicago
Fraser, Roy Fred	Elizabeth
Gambell, Karl Vine	Chicago
Gouwens, Peter	Chicago
Gragg, Alfred Campbell	Litchfield
Hackler, George Roscoe	Pekin
Haines, Harry Edward	Farmer City
Hanneman, Lucas Peter	Chicago
Haralson, Laurence Corsor	Jackson, Tenn.
Hein, Mary Rachel	Champaign
Henry, Carl John	Aurora
Holderread, George Warren	Litchfield
Holsclaw, Fred Harrison	Vivian, S. Dak.
Hutton, Malcolm Lee	Elizabeth
Johnson, Harry Ernest	Rockford
Johnson, Oscar William	Chicago
Kabel, Baron Trank	Cox, S. Dak.
Katzowsky, Louis Joseph	Chicago
Kisner, Talmage Elzie	Carmi
Knowlton, Vene	Lake Mills, Wis.
Kost, William Rush	Astoria
Kraemer, George Charles	Chicago
Lane, Elmer Chester	Kankakee
Larson, Bernard Isaac	Chicago
Lee, William Alexander	Chicago

Leib, Fred Lehman	Bolcom
Levy, Otto Victory	Chicago
Logan, Albert Wellington	LaGrange
Lollar, Errett Hale	Newton
Long, George Archibald	Rensselaer, Ind.
Lowry, Joseph Clayton	Homer
Luckiesh, Edward	Maquoketa, Ia.
Lukasek, Alfred Michael	Chicago
Maddox, Bernard Bate	Grand Island, Neb.
Mackenzie, Jay Emory	Oberlin, Kans.
Marr, James Bruce	Chicago
Metcoff, Eli	Chicago
*Moir, Gilbert Sylvester	Almonte, Ontario, Can.
Murphy, James Stanislaus	Nokomis
Nelson, John	Quincy
Novak, Otto Edward	Chicago
Pankau, Francis Alfred	Chicago
Porter, Houston	St. Louis Mo.
Prendergast, Richard Joseph	Chicago
Rackaway, Alva Walter	Mt. Vernon
Richards, William John	Oglesby
Rieck, Henry Thorsen	Chicago
Rusch, Adalbert	Chicago
Schultz, Charles John	Chicago
Stables, Herry Fleming	Bethany
Strain, Stewart	Chicago
Street, Fay Gordon	Peoria
Stulik, George	Chicago
Ton, Adrian	Chicago
Waldo, Geginald Heber	Grand Junction, Colo.
Walter, George Fred	Chicago
Walther, Reuben William	Peru
Weaver, Joe Hastings	Oregon
Weiss, Henry Nathan	Chicago
Whitington, Omar Rosewell	Waldron, Ark.
Williams, Erwin Rosswell	Chicago
Wokoun, Frank	Chicago
Woltersdorf, Oscar	Chicago
Zajicek, Adolph	Chicago
Zarobsky, Otto Frank	Chicago

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*Did not attend

SPECIALS

SECOND YEAR

Atwood, Harold	Aurora
Beilin, Henry	Chicago
Copeland, Kern Hadley	Grand Junction, Colo.
Forster, Isidore Anthony	Chicago
Landaker, Walter	Chicago
Norris, Melvin Lloyd	Berwyn
Patrick, Francis Elkin	Iola
Patrick, Thomas Sterling	Iola
Schmeling, Carl	Chicago
Snyder, Cloyde W	Astoria
Tauber, Himen Herman	Chicago
Taylor, Harry Arthur	Antioch
Vavra, Minerva	Chicago
Zielinski, Theodore Joseph	Chicago

FIRST YEAR

Addleman, Roy Comely	Joliet
Anderson, Charles Alfred	Peoria
Anderson, John Adolph	Two Harbors, Minn.
Baggaley, William	Chicago
Baird, Frank Jr	Harvard
Bautz, Walter	Chicago
Bermele, William Martin	Chicago
Beyermann, Walter Edwin	Chicago
Brown, Fay W	Springfield
Burkett, Anthony Michael	Springfield
Brykowski, Frank	Cicero
Civis, Matthew Joseph	Chicago
Corleto, Joseph Frank	Chicago
Dahms, Arthur August	Chicago
*Dancey, John Leonard	Malden
Eckhardt, Charles Wilbert	Blue Island
Finnegan, Hugh Joseph	Homer
Fisher, Charles John	Chicago
Frelichowski, John Joseph	Chicago
Gibson, Ernest Augustus	Richview
Goldstine, Harry	Chicago
Gustafson, Melsor Eugene	Chicago
Hart, John McDonald	Chicago
Hedberg, Charles Hilding	Chicago
Holtmann, Joseph Edward	Quincy

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*Did not attend.

Hulden, Clarence Andrew	Chicago
Husa, Frank	Chicago
Jaeger, Clayton Eugene	Chicago
Johannes, Walter Charles	Chicago
King, Edward Max	Chicago
Koszuta, Max Edward	Chicago
Krejci, John	Chicago
*Kuhn, Herbert Alexander	Chicago
Levinson, William Emerson	Chicago
Lierman, Frank Henry	Champaign
Linz, Rudolph George	Quincy
Lochbaum, Irley Solomon	Peoria
Lukaszewski, George Ben	Chicago
Lyman, William Grover	Peoria
Mankowski, Charles	Chicago
Maurer, George Walter	Bloomington
Merschat, Raymond Bartholomew	Chicago
Nelson, Frank Albert	Clinton, Ia.
Prims, George	Chicago
Sandman, Reynald Emil	New Vienna, Ia.
Schlosberg, Benny Sydney	Chicago
Seuring, Carl Albert	Chicago
Stech, Frank James	Chicago
Stodden, Karl	Lyons, Ia.
Subert, Frank James	Chicago
Tholen, Henry Frederick	Egan
Thrush, James Thomas	Hanna City
Tomamichel, Robert Peter	Quincy
Veseley, Anton	Chicago
Warczak, John Stanley	Chicago
Wright, William Raymond	Chicago

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*Did not attend.

INDEX

	Page
Admission	15
Advanced Standing	17
Announcement of the Session	8
Bacteriology, Courses in	35
Botany, Course in	22, 36
Building, Description of	10
Calendar of the School Year	1
Chemistry, Courses in	21, 29, 32
Course, Shorter, for Ph. G	18
Course, Longer, for Ph. C	31
Degrees	42
Employment, Opportunities for	40
Entrance Examination	16
Entrance Requirements	15, 16
Entrance as a Special Student	17
Equipment, Description of	10 to 15
Fees	38
Food and Drug Analysis	32, 33, 34
Graduation Requirements	17
History	6
Library	15
Materia Medica, Courses in	22, 30
Pharmacognosy, Courses in	23, 30
Pharmacy, Courses in	19, 26, 34
Physiology, Courses in	23
Prizes	37
Requirements for Entrance	15, 16
Requirements for Graduation	17
Students, List of	43 to 48
Text Books	37

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1913/14

University of Illinois
School of Pharmacy

(CHICAGO COLLEGE OF PHARMACY)

Announcement
1913 and 1914

9

REGISTER FOR 1912 AND 1913

THE UNIVERSITY OF ILLINOIS
THE STATE UNIVERSITY
Urbana

Edmund J. James, Ph. D., LL. D., President

The University Includes the Following Departments:

THE GRADUATE SCHOOL

THE COLLEGE OF LIBERAL ARTS AND SCIENCES (Ancient and Modern Languages and Literatures; History, Economics and Accountancy, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy, Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design; Ceramics)

THE COLLEGE OF ENGINEERING (Architecture; Architectural, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

THE COLLEGE OF AGRICULTURE (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Veterinary Science; Agricultural Extension; Teachers' Course; Household Science)

THE COLLEGE OF LAW (three years' course)

THE SCHOOL OF EDUCATION

THE COURSES IN BUSINESS (General Business; Banking; Accountancy; Railway Administration; Insurance; Consular Service)

THE COURSE IN JOURNALISM

THE COURSES IN CHEMISTRY AND CHEMICAL ENGINEERING

THE COURSES IN CERAMICS AND CERAMIC ENGINEERING

THE SCHOOL OF RAILWAY ENGINEERING AND ADMINISTRATION

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THE SCHOOL OF PHARMACY (in Chicago; Ph. G. and Ph. C. courses)

THE SUMMER SESSION (eight weeks)

EXPERIMENT STATION: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; Mine Rescue Station.

The Library contains (May 30, 1913) 335,756 volumes and 30,000 catalogues, pamphlets.

For *catalogs and information* address

THE REGISTRAR,
Urbana, Illinois.

CALENDAR—1913-1914

1913

Sept. 9, Tuesday, 9 a. m.	Entrance examinations
Sept. 15, Monday.	Registration day
Sept. 16, Tuesday, 10 a. m.	Junior lectures begin
Sept. 17, Wednesday, 10 a. m.	Senior lectures begin
Nov. 27, Thursday.	Thanksgiving day, holiday
Dec. 20, Saturday, 5 p. m.	Holiday recess begins

1914

Jan. 5, Monday, 9 a. m.	Instruction resumed.
Feb. 12, Thursday.	Lincoln day, holiday
April 15, Wednesday.	Term for candidates for graduate in pharmacy closes
April 19, to 26, inclusive.	Spring recess—pharmaceutical chemist course
April 23, Thursday, 2 p. m.	Commencement
June 5, Friday.	Term for candidates for pharmaceutical chemist closes

THE COLLEGE BUILDING

FIFTY-FOURTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

Michigan Boulevard and Twelfth Street

Chicago, Illinois.

SESSION OF 1913 AND 1914

REGISTER FOR 1912 AND 1913

CHICAGO ∴ PUBLISHED BY THE UNIVERSITY

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C
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1913/14

FACULTY—1912-13

Edmund J. James, Ph. D., LL. D., *President of the University*

*Frederick Marion Goodman, Ph. G., *Professor of Materia Medica and Botany*

Albert Henry Clark, Ph. G., *Assistant Professor of Chemistry*

William Baker Day, Ph. G., *Secretary of the Faculty, Professor of Histological Botany*

Clyde Mason Snow, Ph. G., *Assistant Professor of Pharmacy*

Bernard Fantus, M. D., *Lecturer on Physiology*

Edmund Norris Gathercoal, Ph. G., *Instructor in Pharmacognosy*

Henry William Colson, Ph. C., *Instructor in Chemistry*

Ben Lee Eicher, Ph. C., *Instructor in Pharmacy*

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*Resigned.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and the vicinity in 1859, for the purpose of advancing the practise of pharmacy. At that time there was no school of the kind west of the Allegheny Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured, and a course of lectures instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 instruction was resumed for the second time; it has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry, and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical "School of Pharmacy" of the University of Illinois. In the management of the school, the trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the School of Pharmacy the building located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the school has ever before enjoyed, and the facilities for instruction have been increased.

ANNOUNCEMENT

The fifty-fourth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 16, 1913, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 23, 1914, on which day the graduating exercises will be held. The longer course will close June 5, 1914.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training, are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

THE COLLEGE BUILDING

The college building is located on the northwest corner of Michigan boulevard and Twelfth street, and is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

The location is near to the center of the city and convenient to the various lines of transportation, yet removed from the noise of the business district.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue, and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city.

The Lecture Halls

The lecture halls are three in number, and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows, and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

The laboratories are six in number, including laboratories for qualitative analysis, quantitative analysis, advanced chemistry, pharmacognosy, general pharmacy, and dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students.

The Qualitative Laboratory

The qualitative laboratory is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

THE LABORATORY FOR PHARMACOGNOSY

The Quantitative Laboratory

The quantitative laboratory is 35 by 48 feet in size, and has light from three sides. It is situated at the west end of the second floor of the building, and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use.

The Laboratory for Advanced Chemistry

The laboratory for advanced chemistry is 21 by 40 feet in size, has good light, and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

The Laboratory for Pharmacognosy

The laboratory for pharmacognosy is 26 by 51 feet in size, is situated on the third floor, is well lighted, and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens embracing the drugs official in the pharmacopoeias of France, Germany, Great Britain, and Scandinavia. Other features are a number of illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

For class work in bacteriology, additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators, and the usual bacteriological equipment. A projection microscope is provided.

The Pharmaceutical Laboratory

The pharmaceutical laboratory occupies a room 43 by 51 feet in size, situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, metric weights, etc. Collections of chemical and pharmaceutical products and files of prescriptions are also to be found here.

The Dispensing Laboratory

The dispensing laboratory is situated at the west end of the fourth floor, and has light from three sides. This laboratory is 32 by 47 feet in size. It is fitted with an equipment designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

The Library

The library adjoins the office on the third floor, and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Students' Rooms

A reading room and locker room on the third floor is provided with 238 steel lockers for students' coats, hats, and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age, and must furnish evidence of having completed one year of work in an accredited high school, or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must furnish evidence of graduation from an accredited high school, or of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

Entrance Examinations

For the benefit of those candidates for admission to the course leading to the degree of Graduate in Pharmacy, who are unable to present credentials such as will satisfactorily meet the foregoing requirements, entrance examinations will be given at the School on Tuesday, September 9, 1913, beginning at 9 a. m., and including the following subjects:

1. English Composition
2. Elementary Algebra
3. Either Elementary Latin or Elementary German
4. Physiography and Physiology

Candidates for admission by examination are required to pass in the four branches. Students are not permitted to make up entrance credits or conditions after entering classes.

Advanced Standing

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this school.

Special Students

Registered pharmacists, assistants, or apprentices of Illinois, or of other States having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

Requirements for Graduation

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSE OF INSTRUCTION

The Shorter Course

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

Pharmacy—Junior Year

1. *Introductory*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

1a. *Pharmaceutical Arithmetic.*—Attention is given to the several phases of pharmaceutical arithmetic: the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; a review of common and decimal fractions with problems and demonstrations, and drills in percentage and alligation as applied to pharmaceutical preparations.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications are considered.

3. *Galenical Preparations of the United States Pharmacopoeia and National Formulary.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the foreign pharmacopoeias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopoeia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physicians' prescriptions.

Chemistry—Junior Year

1. *Theoretical Chemistry.*—As an introduction to the subject, the formation of new substances, combustion, reduction, and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions, the laws of Boyle, of Charles, and Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ, and equations, and the quantities entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation, and the ions. These lectures are supplemented with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such manner as to explain more fully the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the metals, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany—Junior Year

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thoro drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy —the individual cell, the aggregation of cells forming tissues, and the arrangement of these tisues in the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

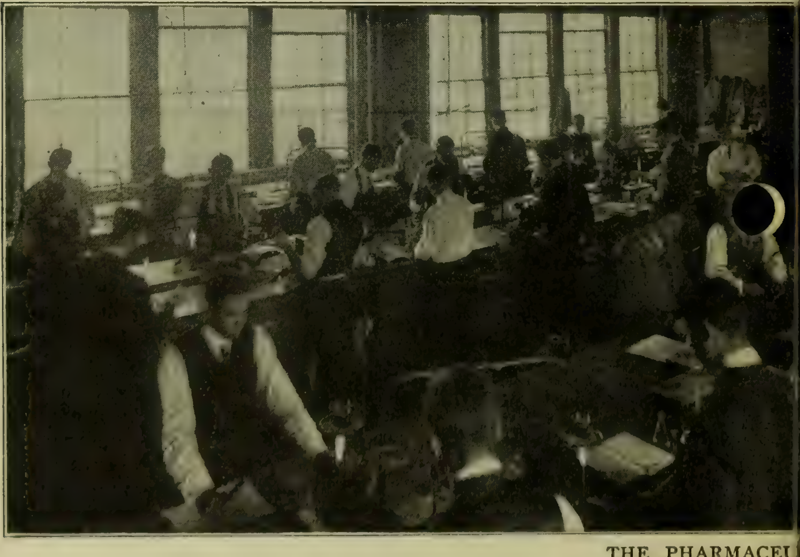
3. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plants and proceeds through the various natural orders and families of the vegetable kingdom as far as dicotyls. The characters of the plants, their habits and products, the commercial history of the parts employed, proximate principles, preparations, therapeutic action, and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given to all drugs included in the pharmacopœia and national formulary.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in materia medica taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and the poisons which he handles. Hence, physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room, and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned, and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

THE PHARMAC



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LECTURE HALL

AL LABORATORY

Pharmacy—Senior Year

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions are first considered, then those requiring more elaborate treatment; the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations being illustrated and their relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: ointments, cerates, suppositories, and plasters; their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity, and strength, and their pharmaceutical preparations, medicinal uses, and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols, and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, and posology, and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive prepara-

tions, tinctures, extracts, fluid extracts, and resins; also the manufacture of scaled and granular salts and the preparations of the national formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates, and pills with various coatings. Those for external use, including ointments, plasters, and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and many extraordinary prescriptions, are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity, and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises. Here the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of which have been written by physicians who are yet in active practice.

Chemistry—Senior Year

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, the priciples of gravimetric analysis are discussed and opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

Materia Medica—Senior Year

6. *Materia Medica.*—This course is a continuation of materia medica 3 (p. 15). It begins with the drugs derived from the dicotyls and considers the remaining vegetable drugs as well as the drugs derived from the animal kingdom.

The habitat, commercial history, method of preparation, medical properties, uses, and doses of each receive due attention.

Toward the close of the term a number of lectures are devoted to the subject of toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the junior year (page 15), this laboratory study closely following the lectures on materia medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practise are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, such drugs as are most generally used are selected for study. Attention is given to the methods employed in the detection of adulterations in powdered drugs and practise is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each, with instruction on five days each week, amounting to about thirty-three hours weekly, or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practise and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 13 to 20), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis, and molecular concentration, or mass action to analytical methods. After the analysis of complex inorganic mixtures, the tests of purity described by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities, such as arsenic, copper, lead, etc. The course concludes with a study of the metals, including many of the less common ones.

THE QUANTITATIVE ANALYTICAL LABORATORY

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose, and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination, in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies, their chemical constitution, derivation, tests for identity and purity, and incompatibilities, together with their synonyms and trade names, particular attention is given these new remedies, especially the so-called "synthetics," as a part of the course in organic chemistry (Chemistry 5).

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine is discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, and the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder, and beverages, and are supplemented by special methods.

Pharmacy.—The work in Pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: Dermatology, Ophthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of eminent practitioners.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure, and classification, together with their chemical composition, vital phenomena, and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed, and due consideration is paid to the ferments, ptomaines, toxins, and antitoxins. The action of various antiseptics, disinfectants, and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, colonies, the technic of cover-glass slips of the basic forms of bacteria and their morphologic characteristics.

Bacteriologic methods in the examination of milk, air and water form a part of the course.

Vegetable Histology.—The course in histology is preparatory to the course in microscopic pharmacognosy which follows it.

Applied Microscopy.—A study of important powdered drugs and spices, with their substitutes and adulterants, is made, and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers, and textiles met with in commerce is undertaken, and instruction in the microscopic examination and identification of the urinary sediments; blood, pus, tubecasts, and crystalline substances, forms a part of the course.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable: he is obliged to provide himself with all those of which the titles are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson & Henderson's Elementary Chemistry, Clark's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Gage's Microscopical Methods, Davison's Human Body, Steven's Plant Anatomy.

PHARMACY.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Arny's Pharmacy.

Honors and Prizes

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BECKER PRIZE.—The Bishop-Babcock-Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highe standing in pharmacy.

THE PRIZE MICROSCOPE.—Mr. Herman Fry, an alumnus of the School, offers a fine compound microscope as a prize to the student who attains the highest average in materia medica and pharmacognosy. Practical work in the laboratory as well as scholarship and attendance will be considered in awarding this prize.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

CLASS HONORS, in both the Junior and the Senior year, are awarded to such students as attain a general average of ninety percent or above.

Fees and Expenses

Matriculation.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

Tuition Fees.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the student to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus as well as needless or wilful damage to fixtures or building, each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coatroom. The remainder will be refunded at the end of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *In event of the fees not being paid in full within ten days after the session begins an additional charge of five dollars will be made.*

Board and Lodging.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to matriculate early.

Opportunities for Employment

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will range from five to ten dollars per week.

State Registration

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy or register by reciprocity with another State. Illinois reciprocates with the state boards of thirty-two states upon the basis of registration by examination in any one of these states and graduation from a recognized school of pharmacy.

The diploma of this School is accepted in lieu of examination for registration in several states, and in others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. Day, *Actuary.*

74 East Twelfth St., Chicago, Ill.

DEGREES

PHARMACEUTICAL CHEMIST

Boutte, Matthew Virgil (Class of 1911)	New Iberia, La.
Snyder, Forrest Omo	Chicago
Vann, James Silas	Chicago

GRADUATE IN PHARMACY

Arnold, Grover Cleveland	Astoria
Buckman, George Edward	Chicago
Chapman, Harold Potter	Chicago
Cleveland, Harold Vincent	Grayslake
Davenport, Royal R.	Calvin
Davidson, George Edward	Chicago
Donahue, Edward Thomas	Chicago
Eicholtz, Guy Wilbur	Chicago
Gambell, Karl Vine	Chicago
Gragg, Alfred Campbell	Litchfield
Hanneman, Lucas Peter	Chicago
Heidbreder, Edgar Philip	Quincy
Henry, Carl John	Aurora
Hutton, Malcolm Lee	Elizabeth
Kost, William Rush	Astoria
Logan, Albert Wellington	LaGrange
Lollar, Errett Hale	Newton
Luckiesh, Edward	Maquoketa, Ia.
Lukasek, Alfred Michael	Chicago
McNeill, Roy	Herrin
Metcoff, Eli	Chicago
rter, Houston	St. Louis, Mo.
hulz, Walter Carl	Chicago
Schultz, Charles John	Chicago
Stables, Harry Fleming	Bethany
Stoebig, Louis Elmer	Chicago
Stulik, George	Chicago
Van Nugteren, Frank William	Chicago
Walther, Reuben William	Peru
Wixsom, Lee Almond	Marion, Ind.
Woltersdorf, Oscar E.	Chicago
Balmer, Fred Bernard (Class of 1912)	Chicago
Hrejsa, Joseph Francis (Class of 1911)	Chicago

CERTIFICATES

Lawson Jacob Cooke	Goodland, Ind.
Albert Cook	Terre Haute, Ind.
George Charles Kraemer	Chicago
William Alexander Lee	Chicago
Everet A. Lewman	Montezuma, Ind.
Francis Alfred Pankau	Chicago
Charles Edward Wach	Chicago
Alva Walter Rackaway	Mt. Vernon

CLASS HONORS

SENIOR CLASS HONORS AND PRIZES

Edward T. Donahue	Becker Prize
Lawson Jacob Cooke	Biroth Prize
Albert Cook	A. Ph. A. Membership in Pharmacy
Edward Luckiesh	A. Ph. A. Membership in Pharmacognosy
Edgar P. Heidbreder	A. Ph. A. Membership in Chemistry
George Edward Davidson	Honorable Mention

JUNIOR CLASS HONORS

Albert Franklin Anderson
Frederick E. Boehm
Paul W. Edgett
J. Gerald Garrity
Irving F. Pearce
Elmer E. Rueckert
Albert Schreiner, Jr.
George F. Vaupell
Genario D. Lavieri

LIST OF STUDENTS

Session 1912-1913

Course for Pharmaceutical Chemist

SENIORS

Heidbreder, Edgar Philip	Quincy
Snyder, Forrest Omo	Chicago
Vann, James Silas	Chicago

JUNIORS

Edgett, Paul Wright	Earlville
Hoy, Ralph Gilbert	Monmouth
Lavieri, Genario Dominic	Chicago
Schreiner, Albert, Jr	Batavia
Vaupell, George Frederick	Chicago
Weber, Peter Jacob Francis	Chicago

SPECIAL

Anderson, Adolph Emil (Ph. G. 1911)	Moline

Course for Graduate in Pharmacy

SENIORS

Arnold, Grover Cleveland	Astoria
Borucki, Edward Anthony Felix	Chicago
Buckman, George Edward	Chicago
Chapman, Harold Potter	Chicago
Clark, Francis Edward	Peoria
Cleveland, Harold Vincent	Grayslake
Cooke, Lawson Jacob	Goodland, Ind.
Cook, Albert	Terre Haute, Ind.
Crawford, Abiram Lee	Genoa
Davenport, Royal R	Calvin
Davidson, George Edward, B. A. (Fisk University, 1909)	East St. Louis
Donahue, Edward Thomas	Chicago
Eicholtz, Guy Wilbur	Chicago
Gambell, Karl Vine	Chicago
Gragg, Alfred Campbell	Litchfield
Hackler, Roscoe George	Pekin
Hanneman, Lucas Peter	Chicago
Henry, Carl John	Aurora
Holderread, George Warren	Litchfield

Hutton, Malcolm Lee	Elizabeth
Kost, William Rush	Astoria
Kraemer, George Charles	Chicago
Lee, William Alexander	Chicago
Lewman, Everet Andrew, B. S. (Purdue University, 1902)	Montezuma, Ind.
Logan, Albert Wellington	LaGrange
Lollar, Errett Hale	Newton
Long, George Archibald	Rensselaer, Ind.
Luckiesh, Edward	Maquoketa, Ia.
Lukasek, Alfred Michael	Chicago
McNeill, Roy	Herrin
Metcoff, Eli	Chicago
Murphy, James Stanislaus	Nokomis
Pankau, Francis Alfred	Chicago
Porter, Houston	St. Louis, Mo.
Prendergast, Richard Joseph	Chicago
Rackaway, Alva Walter	Mt. Vernon
Radomski, Leon Roman	Chicago
Schulz, Walter Carl	Chicago
Schultz, Charles John	Chicago
Stables, Harry Fleming	Bethany
Stoebig, Louis Elmer	Chicago
Stulik, George	Chicago
Sullivan, William Clark	Flanagan
Van Nugteren, Frank William	Chicago
Wach, Charles Edward	Chicago
Waldo, Reginald Heber	Grand Junction, Colo.
Walter, George Fred	Chicago
Walther, Reuben William	Peru
Weaver, Joe Hastings	Oregon
Whitington, Omar Harwell	Waldron, Ark.
Wixsom, Lee Almond	Marion, Ind.
Woltersdorf, Oscar	Chicago
Zarobsky, Otto Frank	Chicago

JUNIORS

Anderson, Albert Franklin	St. Johns, Ariz.
Bate, Harry Duddly	Chicago
Becker, Edna	Davenport, Ia.
Blahnik, Emil Albert	Chicago
Boehm, Frederick Evenson	Neenah, Wis.
Bosch, August Christopher	Gratiot, Wis.
Brekke, Marshall Theodore	Rice Lake, Wis.
Bryant, Floyde Wiley	Elizabeth
Canham, George Ernest	Neponset
Converse, Lawrence	Chicago
Crow, Joseph Benjamin	Ashley
Cunningham, Thomas William	Chicago
DeKoker, Abraham	Chicago
Ende, Walter Arthur	Chicago
Esmond, Wendell R	Maywood

Falder, Everett Lester	Chicago
Freedman, Paul	Chicago
Friedl, William John	Chicago
Garrity, J. Gerald	Spring Valley
Garside, James William	Wyoming
Gates, George Francis	Chicago
Goltermann, Richard William	Forest Park
Gouwens, Peter	Chicago
Greenawalt, Percy F.	Lanark
Hecht, Emil	Chicago
Hildebrandt, Philip Ervin	Lake Mills, Wis.
Hirsh, David	Chicago
Hollinshead, Elwood Jay	Morrison
Huston, Hubert Spangler	Carthage
Jindrich, George William	Chicago
Johnson, Harry Ernest	Rockford
Jordan, Gill	Chicago
Kakacek, Joseph John	Chicago
Kaspar, William John	Chicago
Knox, John McConnell	Rensselaer, Ind.
Krohn, Fred Earl	Roseville
Lesko, Charles James	Chicago
Mancusi, John B.	Chicago
McBride, George William	Paw Paw
Mendelsohn, Paul Israel	Chicago
Merschat, Richard William	Chicago
Meyrick, George Joseph	Chicago
Michalak, Casimir Anthony	Chicago
Miller, Thomas	Chicago
Miller, D. Lyman	Carmi
Myerson, Abraham	Chicago
Newberry, George Morris	Rock Island
Niesen, Charles James	LaSalle
Oetzel, Joe Karnes	Danville
Orr, Charles Clarence	Chicago
earce, Irving Fitch	Chicago
Polin, Rose	Chicago
Rueckert, Elmer Edward	Lake Mills, Wis.
Schmid, Harold	Chicago
Shaw, Albert Jay	Miller, So. Dak.
Shwetz, Michael	Chicago
Skillman, Herbert Irving	Wyoming, Ohio
Sladky, George Joseph	Hawthorne
Stryzek, Edward Joseph	Chicago
Tanner, James Clifton	Louisville
Thompson, Ralph Harold	Earlville
Todd, Harold Andrew	Grand Junction, Colo.
Vavra, Clio	Chicago
Vondrasek, Frank Joseph	Chicago
Warzynski, Ladislaus Joseph	Chicago
Whitley, Walker Edward	Waterford, Wis.

SPECIALS

SECOND YEAR

Baird, Frank, Jr	Harvard
Hart, John McDonald	Chicago
Hedberg, Charles Hilding	Chicago
Hulden, Clarence Andrew	Chicago
Jaeger, Clayton Eugene	Chicago
Johannes, Walter Charles	Chicago
Levy, Leon Frank	Ottawa
Merschat, Raymond Bartholomew	Chicago
Prims, George	Chicago
Seuring, Carl Albert	Chicago
Stodden, Karl	Lyons, Ia.
Subert, Frank James	Chicago
Taylor, Harry Arthur	Antioch
Tomamichel, Robert Peter	Quincy
Warczak, John Stanley	Chicago
Wilhelm, William Floyd, Ph. G. (Valparaiso University, 1907)	Carbondale

FIRST YEAR

Baggaley, William	Chicago
Bautz, Walter	Chicago
Beckert, LeRoy	Chicago
Borrelli, Dominick	Chicago
Broom, Lewis Harris	Effingham
Brown, Lester Elbert	Pontiac
Brykowski, Frank	Cicero
Clodgio, Norman Timothy	Chicago
Dahms, Arthur August	Chicago
Dancey, John Leonard	Malden
Dulla, Joseph Peter	Chicago
Egan, Raymond	Chicago
Erickson, Arthur Henry	Chicago
Gabric, Philip	Chicago
Glenn, Elmer Henry	Chicago
Goldstine, Harry	Chicago
Gordon, Samuel Michael	Chicago
Grund, Charles Hugo, Jr	Chicago
Gustafson, Melsor Eugene	Chicago
Huebner, Charles Lawrence	Chicago
Kaufman, Isadore	Chicago
Kowalski, Joseph Wengel	Chicago
Sadilek, William	Chicago
Schabloske, Charles Leo	Chicago
Schultz, Alfred Edward	Waterman
Stech, Frank James	Chicago
Trippett, Sidney Bradley	Texarkana, Ark.
Unger, Paul	Chicago
Walsh, Thomas George	Chicago
Wiles, Clarence Edward	Kankakee
Zeman, Albert William	Chicago

INDEX

Page
Admission 11
Advanced Standing 12
Announcement of the Session 7
Bacteriology, Courses in 23
Botany, Course in 15, 23
Building, Description of 8
Calendar of the School Year 1
Chemistry, Courses in 14, 15, 19, 20, 22
Course, Shorter, for Ph. G 13
Course, Longer, for Ph. C 20
Degrees 27
Employment, Opportunities for 26
Entrance Examination 12
Entrance Requirements 11
Entrance as a Special Student 12
Equipment, Description of .... 8 to 11
Fees 25
Graduation Requirements 12
History 6
Library 11
Materia Medica, Courses in 15, 19
Pharmacognosy, Courses in 15, 20
Pharmacy, Courses in 13, 14, 18, 19, 23
Physiology, Courses in 15
Prizes 24
Requirements for Entrance 11, 12
Requirements for Graduation 12
Students, List of .... 29 to 32
Text Books 24

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1914/15

University of Illinois School of Pharmacy

(CHICAGO COLLEGE OF PHARMACY)

Announcement 1914 and 1915

REGISTER FOR 1913 AND 1914

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

Urbana

EDMUND J. JAMES, Ph. D., LL. D., President

The University includes the following departments:

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics and Accountancy, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy, Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design; Ceramics)

The College of Engineering (Architecture; Architectural, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Veterinary Science; Agricultural Extension; Teachers' Course; Household Science)

The College of Law (Three years' course)

The School of Education

The Courses in Business (General Business; Banking; Accountancy; Railway Administration; Insurance, Secretarial; Commercial Teachers)

The Course in Journalism

The Courses in Chemistry and Chemical Engineering

The Courses in Ceramics and Ceramic Engineering

The School of Railway Engineering and Administration

The School of Music (Four years' course)

The School of Library Science (two years' course)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. courses)

The Summer Session (eight weeks)

Experiment Stations: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; Mine Rescue Station

The *library collections* contain (May 30, 1914) 295,000 volumes, including the library of the State Laboratory of Natural History (8,100 volumes), the Quine Medical Library (14,000 volumes), and the library of the School of Pharmacy (2,000 volumes).

For *catalogs and information* address

THE REGISTRAR, Urbana, Illinois

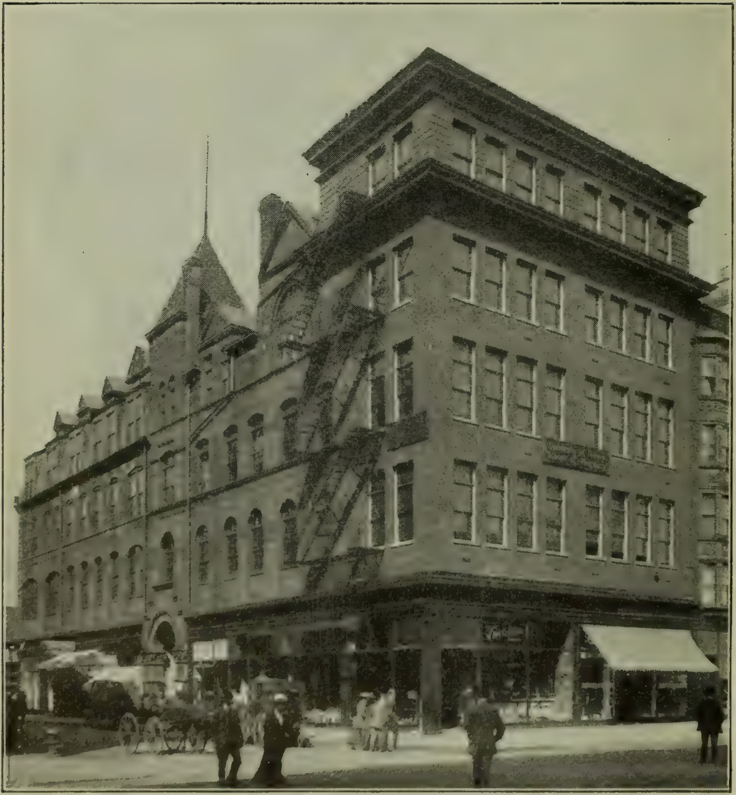
CALENDAR—1914-1915

1914

Sept. 21, Monday.	Registration day
Sept. 22, Tuesday, 11 a. m.	Junior lectures begin
Sept. 23, Wednesday, 10 a. m.	Senior lectures begin
Nov. 26, Thursday.	Thankskiving day, holiday
Dec. 19, Saturday, 5 p. m.	Holiday recess begins

1915

Jan. 4, Monday, 9 a. m.	Instruction resumed.
April 15, Wednesday.	Term for candidates for graduate in pharmacy closes.
April 25 to May 2, inclusive.	Spring recess—pharmaceutical chemist course.
April 28, Wednesday, 2 p. m.	Commencement.
June 11, Friday.	Term for candidates for pharmaceutical chemist closes.



THE COLLEGE BUILDING

FIFTY-FIFTH ANNUAL ANNOUNCEMENT
UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY
(CHICAGO COLLEGE OF PHARMACY)

Michigan Boulevard and Twelfth Street
Chicago, Illinois.

SESSION OF 1914 AND 1915

REGISTER FOR 1913 AND 1914

CHICAGO ∴ PUBLISHED BY THE UNIVERSITY

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Arthur Meeker, Chicago
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1914/15

FACULTY—1913-1914

EDMUND J. JAMES, Ph. D., LL. D., *President of the University*

WILLIAM BAKER DAY, Ph. G., *Acting Dean, Secretary of the Faculty, Professor of Materia Medica and Botany*

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CLYDE MASON SNOW, Ph. G., *Assistant Professor of Pharmacy*

BERNARD FANTUS, M. D., *Lecturer on Physiology*

EDMUND NORRIS GATHERCOAL, Ph. G., *Instructor in Pharmacognosy*

HENRY WILLIAM COLSON, Ph. C., *Instructor in Chemistry*

BEN LEE EICHER, Ph. C., *Instructor in Pharmacy*

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and the vicinity in 1859, for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Allegheny Mountains. Members and friends contributed money, books, apparatus and supplies; teachers were secured, and a course of lectures instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucelus of the present equipment. In 1872 instruction was resumed for the second time; it has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical "School of Pharmacy" of the University of Illinois. In the management of the school, the trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the School of Pharmacy the building located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the school has ever before enjoyed, and the facilities for instruction have been increased.

ANNOUNCEMENT

The fifty-fifth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 22, 1914, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Wednesday, April 28, 1915, on which day the graduating exercises will be held. The longer course will close June 11, 1915.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training, are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

THE COLLEGE BUILDING

The college building, located on the northwest corner of Michigan boulevard and Twelfth street, is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

The location is near to the center of the city and convenient to the various lines of transportation, yet removed from the noise of the business district. ,

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city.

The Lecture Halls

The lecture halls are three in number and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows, and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

The laboratories are six in number, including laboratories for qualitative analysis, quantitative analysis, advanced chemistry, pharmacognosy, general pharmacy and dispensing. The total capacity of these laboratories is sufficient for the accommodation of 348 students.

The Qualitative Laboratory

The qualitative laboratory is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

THE LABORATORY FOR PHARMACOGNOSY

The Quantitative Laboratory

The quantitative laboratory is 35 by 48 feet in size, and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use.

The Laboratory for Advanced Chemistry

The laboratory for advanced chemistry is 21 by 40 feet in size, has good light and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

The Laboratory for Pharmacognosy

The laboratory for pharmacognosy, 26 by 51 feet in size, is situated on the third floor. Desks are provided for sixty-eight students. Sixty-four compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens embracing the drugs official in the pharmacopœias of France, Germany, Great Britain and Scandinavia. Other features are a number of illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

For class work in bacteriology, additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators, and the usual bacteriological equipment. A projection microscope is provided.

The Pharmaceutical Laboratory

The pharmaceutical laboratory occupies a room 43 by 51 feet in size, situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, metric weights, etc. Collections of chemical and pharmaceutical products and files of prescriptions are also to be found here.

The Dispensing Laboratory

The dispensing laboratory is situated at the west end of the fourth floor, and has light from three sides. This laboratory is 32 by 47 feet in size. It is fitted with an equipment designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

The Library

The library adjoins the office on the third floor, and contains about two thousand volumes, including in addition to the usual works of reference, many rare books, complete files of the leading pharmaceutical periodicals and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Students' Rooms

A reading room and locker room on the third floor is provided with 238 steel lockers for students' coats, hats and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicant for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age, and must furnish evidence of having completed two years of work in an accredited high school, or of possessing the full educational equivalent of two years of high school work.

Beginning in September, 1916, the requirement for admission to the course leading to the degree of Graduate in Pharmacy will be graduation from an accredited high school, including the completion of 15 acceptable units of high school work, or the full educational equivalent.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must furnish evidence of graduation from an accredited high school, or of a preliminary education equivalent thereto. In every case the student must show by official certificate in detail the completion of fifteen units of secondary instruction.

Entrance Examinations

For the benefit of those candidates for admission who are unable to present credentials such as will satisfactorily meet the foregoing requirements, entrance examinations will be conducted by the Registrar of the University at the buildings of the College of Medicine, on the corner of Congress and Honore streets, Chicago, September 21 to 25, 1914. These examinations will include all the subjects accepted by the University for admission.

Candidates for admission by examination to the shorter course, leading to the degree of Graduate in Pharmacy, are required to pass in a sufficient number of subjects to give eight units of credit; for the longer course, leading to the degree of Pharmaceutical Chemist, fifteen units of credit must be made by examinations. A program of the entrance examinations will be sent on request.

Advanced Standing

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

Special Students

Registered pharmacists, assistants or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students must be twenty-one years of age or over and be qualified to do the work of the School. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

Requirements for Graduation

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSE OF INSTRUCTION

The Shorter Course

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

Pharmacy—Junior Year

1. *Introductory*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

1a. *Pharmaceutical Arithmetic.*—Attention is given to the several phases of pharmaceutical arithmetic: the converison of avoirdupois and apothecaries' weights into metric equivalents and vice versa; a review of common and decimal fractions with problems and demonstrations, and drills in percentage and alligation as applied to pharmaceutical preparations.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its source and uses as involved in the many processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications are considered.

3. *Galenical Preparations of the United States Pharmacopoeia and National Formulary.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the foreign pharmacopoeias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physicians' prescriptions.

Chemistry—Junior Year

1. *Theoretical Chemistry.*—As an introduction to the subject, the formation of new substances, combustion, reduction, and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions, the laws of Boyle, of Charles, and Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now perpared to study intelligently the use of chemical symbols, formulæ, and equations, and the quantities entering into chemical reactions. The general properties of acids, bases, and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation, and the ions. These lectures are supplemented with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such manner as to explain more fully the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the metals, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany—Junior Year

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions are fully illustrated and described, and thoro drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plants and proceeds through the various natural orders and families of the vegetable kingdom as far as dicotyls. The characters of the plants, their habits and products, the commercial history of the parts employed, proximate principles, preparations, therapeutic action, and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given to all drugs included in the pharmacopœia and national formulary.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in materia medica, taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and the poisons which he handles. Hence, physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room, and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned, and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

THE PHARMA

THE PHARMACE

LECTURE HALL.

CAL LABORATORY.

Pharmacy—Senior Year

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations being illustrated and their relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: ointments, cerates, suppositories and plasters; their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses, and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum, resins, balsams and exudation products generally, the acids, alkaloids and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation and posology, and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories and plasters; as well as of the more important extractive prepara-

tions, tinctures, extracts, fluid extracts and resins; also the manufacture of scaled and granular salts and the preparations of the national formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories are also prepared by the various methods in vogue.

Toward the close of the term, mixtures typical of all ordinary and many extraordinary prescriptions, are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises. Here the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of which have been written by physicians who are yet in active practice.

Chemistry—Senior Year

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, the principles of gravimetric analysis are discussed and opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

Materia Medica—Senior Year

6. *Materia Medica.*—This course is a continuation of materia medica 3 (p. 15). It begins with the drugs derived from the dicotyls and considers the remaining vegetable drugs as well as the drugs derived from the animal kingdom.

The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term a number of lectures are devoted to the subject of toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the junior year (page 15), this laboratory study closely following the lectures on materia medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, such drugs as are most generally used are selected for study. Attention is given to the methods employed in the detection of adulterations in powdered drugs and practice is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each, with instruction on five days each week, amounting to about thirty-three hours weekly, or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 13 to 20), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis and molecular concentration or mass action, to analytical methods. After the analysis of complex inorganic mixtures, the tests of purity described by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities, such as arsenic, copper, lead, etc. The course concludes with a study of the metals, including many of the less common ones.

THE QUANTITATIVE ANALYTICAL LABORATORY

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose, and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies, their chemical constitution, derivation, tests for identity and purity, and incompatibilities, together with their synonyms and trade names, particular attention is given these new remedies, especially the so-called "synthetics," as a part of the course in organic chemistry (Chemistry 5).

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine is discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, and the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder and beverages, and are supplemented by special methods.

Pharmacy.—The work in pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: dermatology, ophthamology, laryngology, gynecology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of eminent practitioners.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effects are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed, and due consideration is paid to the ferments, ptomaines, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, colonies, the technic of cover-glass slips of the basic forms of bacteria and their morphologic characteristics.

Bacteriologic methods in the examination of milk, air and water form a part of the course.

Vegetable Histology.—The course in histology is preparatory to the course in microscopic pharmacognosy which follows it.

Applied Microscopy.—A study of important powdered drugs and spices, with their substitutes and adulterants is made, and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibres and textiles met with in commerce is undertaken, and instruction in the microscopic examination and identification of the urinary sediments; blood, pus, tubecasts and crystalline substances forms a part of the course.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those of which the titles are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson & Henderson's Chemistry, Clark's Analytical Chemistry, Haskin's Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Bastin's College Botany,* Gage's Microscopical Methods, Davison's Human Body, Steven's Plant Anatomy.

PHARMACY.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Arny's Pharmacy.

Honors and Prizes

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE PRIZE MICROSCOPE.—Mr. Herman Fry, an alumnus of the School, offers a fine compound microscope as a prize to the senior student who attains the highest average in materia medica and pharmacognosy. Practical work in the laboratory as well as scholarship and attendance will be considered in awarding this prize.

PHARMACY PRIZE.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

CLASS HONORS, in both the junior and the senior year, are awarded to such students as attain a general average of ninety per cent or above.

Fees and Expenses

MATRICULATION.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the student to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coatroom. The remainder will be refunded at the end of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

PAYMENT OF FEES.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *If the fees are not paid in full within ten days after the session begins an additional charge of five dollars will be made.*

BOARD AND LODGING.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

BOOKS.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to martriculate early.

Opportunities for Employment

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will range from five to ten dollars per week.

State Registration

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy or register by reciprocity with another state. Illinois reciprocates with the state boards of thirty-one states upon the basis of registration by examination in any one of these states.

The diploma of this School is accepted in lieu of examination for registration in several states, and in others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. Day, *Actuary.*

74 East Twelfth St., Chicago, Ill.

DEGREES—1914

DEGREE OF PHARMACEUTICAL CHEMIST.

EDGETT, PAUL WRIGHT, *Earlville.*
LAVIERI, GENNARO DOMINIC, *Chicago.*
SCHREINER, ALBERT, JR., *Batavia.*
STULIK, GEORGE, *Chicago.*
VAUPELL, GEORGE FREDERICK, *Chicago.*
HEIDBREDER, EDGAR PHILIP (Class of 1913)

DEGREE OF GRADUATE IN PHARMACY.

ANDERSON, ALBERT FRANKLIN
BECKER, EDNA
BOSCH, AUGUST CHRISTOPHER
BROWN, J. BURDETTE
BRYANT, FLOYDE WILEY
CANHAM, GEORGE ERNEST
CONVERSE, LAWRENCE
ENDEE, WALTER ARTHUR
FISLER, OSCAR
GARRITY, JEREMIAH G.
HAINES, HARRY EDWARD
HILDEBRANDT, PHILIP IRVING
HOLLINSHEAD, ELWOOD JAY
JOHNSON, HARRY E.
JORDAN, JONATHAN G.
LANE, ELMER CHESTER
MENDELSOHN, PAUL ISRAEL
MERSCHAT, RICHARD WILLIAM
MYERSON, ABRAHAM
ORR, CHARLES CLARENCE
PEARCE, IRVING FITCH
RUECKERT, ELMER EDWARD
SCHMID, HAROLD
THOMPSON, RALPH HAROLD
TON, ADRIAN
VAVRA, CLIO
WARZYNSKI, LADISLAUS JOSEPH

COOK, ALBERT JOHN (Class of 1913)
KRAEMER, GEORGE CHARLES (Class of 1913)
LEE, WILLIAM ALEXANDER (Class of 1913)
RACKAWAY, ALVA WALTER (Class of 1913)
WACH, CHARLES EDWARD (Class of 1913)
SMITH, MARY LEINBAUGH (Class of 1909)

Certificates

HUSTON, HUBERT SPANGLER
LEIB, FREDERICK LEHMAN
VONDRASEK, FRANK JOSEPH

HONORS

Senior Class

JEREMIAH G. GARRITY	*Becker Prize*
EDNA BECKER	*Fry Prize*
ALBERT F. ANDERSON	*A. Ph. A. Membership in Materia Medica*
ALBERT SCHREINER, JR	*A. Ph. A. Membership in Pharmacy*
GEORGE F. VAUPELL	*A. Ph. A. Membership in Chemistry*

Junior Class

MONTE ALLEN
KENNETH F. ALLMAN
SAM L. BAKER
MIKE R. BIANCO
CARROLL E. BUNDY
HARRY L. EBERLY
BRUCE S. MARSHALL
FRANKLIN C. MUELLER
MARK E. NEVILLE
JOSEPH W. RAYCRAFT
ROBERT C. REED
M. S. G. SALINAS

LIST OF STUDENTS—1913-1914

COURSE FOR PHARMACEUTICAL CHEMISTS.

Seniors

Edgett, Paul Wright	*Earlville*
Lavieri, Gennaro Dominic	*Chicago*
Schreiner, Albert, Jr.	*Batavia*
Stulik, George	*Chicago*
Vaupell, George Frederick	*Chicago*

Juniors

Bundy, Carroll Edwin	*Sheldon*
Butts, Joseph C.	*Chicago*
Combacker, Marie Frances, A. B. (*Carroll College 1913*)	*Ellsworth, Wis.*
Juska, Anton	*Chicago*
Miller, William N.	*Waterloo, Ia.*
Pelc, Joseph	*Chicago*
Schwaber, Hanna Myra	*Chicago*
Scruggs, Edward Palmer	*Livingston, Ala.*
VanderBogart, Walter Alanson	*Wilmington*

COURSE FOR GRADUATES IN PHARMACY.

Seniors

Anderson, Albert Franklin	*St. Johns, Ariz.*
Bate, Harry Duddly	*Chicago*
Becker, Edna	*Davenport, Ia.*
Bosch, August Christopher	*Gratiot, Wis.*
Brown, J. Burdette	*Tampico*
Bryant, Floyde Wiley	*Elizabeth*
Canham, George Ernest	*Neponset*
Carthan, William Arthur, A. B. (*Morris Brown Coll. 1902*)	*East Macon, Ga.*
Converse, Lawrence	*Chicago*
Endee, Walter Arthur	*Chicago*
Ewing, Theodore Madison	*Neoga*
Fisler, Oscar	*Chicago*
Garrity, Jeremiah G.	*Spring Valley*
Garside, James William	*Wyoming*
Gouwens, Peter	*Chicago*
Haines, Harry Edward	*Farmer City*
Hansen, Harold Walter	*Lake Mills, Wis.*
Hildebrandt, Philip Ervin	*Lake Mills, Wis.*
Hollinshead, Elwood Jay	*Morrison*
Huston, Hubert Spangler	*Carthage*
Johnson, Harry Ernest	*Rockford*
Jordan, Gill	*Chicago*
Lane, Elmer Chester	*Kankakee*
Leib, Fred Lehman	*Anna*
McBride, George William	*Paw Paw*
Mendelsohn, Paul Israel	*Chicago*
Merschat, Richard William	*Chicago*
Miller, David Lyman	*Carmi*
Myerson, Abraham	*Chicago*
Oetzel, Joe Karnes	*Danville*
Orr, Charles Clarence	*Chicago*
Pearce, Irving Fitch	*Chicago*
Rose, Leonard	*Chicago*
Rueckert, Elmer Edward	*Lake Mills, Wis.*
Schmid, Harold	*Chicago*
Strain, Stewart	*Chicago*
Thompson, Ralph Harold	*Earlville*
Todd, Harold Andrew	*Grand Junction, Colo.*
Ton, Adrian	*Chicago*
Trachman, Charles	*Ransom*
Vavra, Clio	*Chicago*
Vondrasek, Frank Joseph	*Chicago*

Waldo, Reginald Heber	*Grand Junction, Colo.*
Warzynski, Ladislaus Joseph	*Chicago*

Juniors

Allen, Monte	*Gray's Lake*
Allman, Kenneth Frederick	*Rennsselaer, Ind.*
Anderson, Walter Emanuel	*Chicago*
Anderson, Richard Joel	*Chicago*
Aron, Fannie Lillian	*Chicago*
Baker, Sam Leon	*Gary, Ind.*
Bakkers, Arthur	*Chicago*
Barone, Christopher	*Chicago*
Barr, Harry Andrew, A. B. (*William & Vashti Coll. 1913*)	*Aledo*
Bianco, Mike Robert	*Du Quoin*
Blahnik, Emil Albert	*Chicago*
Boucher, Orlando	*Claypool, Ky.*
Bradley, George Chester	*Auburn*
Brehm, Leonard Anthony	*Farmer City*
Brewer, Chester Wellington	*Urbana*
Brierton, Harold	*Dixon*
Brown, Louis	*Chicago*
Bucke, William Stuhlmann	*Chicago*
Buckrucker, Walter	*Chicago*
Carlson, Herbert Sigfrid Eugene	*Chicago*
Clay, Byron Eugene	*Lena*
Copeland, Thomas Bragg	*Grand Junction, Colo.*
Coultas, Wiley Davenport	*Murrayville*
Datz, Charles Percival	*Chicago*
Davis, Guy Brooks	*Abingdon*
Davis, Ray Robbins	*Abingdon*
DeKoker, Abraham	*Chicago*
Diesner, Herbert Otto	*Maywood*
Drais, Grover	*Onawa, Ia.*
Eberly, Harry Leo	*Aurora*
Etnyre, Edward Lee	*Oregon*
Faulkner, Raymond Earl	*Fulton*
Fessler, Harold Earl	*West Chicago*
French, Sidney Byington	*Lake Geneva, Wis.*
Geispitz, Victor	*Chicago*
Giblin, John Norbert	*Chicago*
Glenn, Jacob F., LL.B. (*University of Iowa, 1901*)	*Chicago*
Goldman, Benjamin	*Chicago*
Gorham, Louis Andrew	*Chicago*
Gray, Martin Paul	*Allendale*
Haffner, Louis Leo	*Bloomington*
Hansen, Arthur Leon	*Chicago*
Harris, Walter Arthur	*Chicago*
Hawthorne, Ralph	*Enfield*
Hirschfield, Harold	*Chicago*
Hlavaty, Joseph	*Chicago*
Hojnacki, Sylvester Henry	*Chicago*
Hunter, Cecil Wesley	*Pesotum*
Jacobson, Michael	*Chicago*
Jindrich, George William	*Chicago*
Johnson, Archie Kirkwood	*Joliet*
Jones, Chance Charles	*Shipman*
Kakacek, Joseph John	*Chicago*
Kanta, Harry	*Chicago*
Kaspar, William John	*Chicago*
Kaucky, Emanuel	*Morgan Park*
Kehr, Floyd A.	*Dixon*
Kral, Edward Joseph	*Chicago*
Krebs, Rudolph	*Milford*
Kvasnicka, Joseph Benjamin	*Chicago*
Langel, Harry Charles	*Robinson*
Lash, Abraham Lazar	*Chicago*
Leckband, Theodore August Joseph	*Grand Mound, Ia.*
Lee, Wan Soo	*Seoul, Korea*
Lesko, Charles James	*Chicago*

Litson, Will Carleton	*Pontiac*
Lofgren, David	*Chicago*
Lowis, Benjamin	*Chicago*
McKenty, Arthur Henry	*Chicago*
Malkewicz, Stephen Edwin	*Chicago*
Marofske, Alexander Edward	*Chicago*
Marriott, Bates	*Galesburg*
Marshall, Bruce Scott	*Chicago*
Masty, Alexander Joseph	*Iron Mountain, Mich.*
Miller, Harry	*Chicago*
Mordente, Anthony Francis	*Chicago*
Mueller, Franklin Christopher	*Jefferson, Wis.*
Nelson, Hans Albin	*Peoria*
Nelson, James Cullent	*Houston, Texas*
Neville, Mark Eldon	*Gray's Lake*
Niemeyer, Frank Charles	*Galena*
Obermiller, Oswald Edward Fred	*Galena*
Pavek, Joseph Emil	*Chicago*
Pelikan, Fred Oldrich	*Chicago*
Person, Frank Daniel	*Chicago*
Poli, Domingo	*Guayama, Porto Rico*
Protasewicz, Jennie	*Chicago*
Quartetti, Leonard	*Chicago*
Raycraft, Joseph Winfred	*Springfield*
Reed, Earl LeRoy	*Robinson*
Reed, Robert Charles	*Quincy*
Rey, Young	*Soon Chun, Korea*
Riemer, Edwin Robert	*Chicago*
Ritter, William John	*Mattoon*
Ritzman, Robert	*Orangeville*
Robertson, Monroe	*Decatur*
Salinas, Miguel Saavedra Garcia	*Arroyo, Porto Rico*
Schemmel, Alfred Lawrence	*Dyersville, Ia.*
Schoen, Edward	*Chicago*
Sikyta, Henry William	*Chicago*
Simmons, Bayard Edwin	*Girard*
Simmons, Clarence Waldo	*Chicago*
Sladky, George Joseph	*Hawthorne*
Slinkard, Ernest Lee	*Grand Junction, Colo.*
Spalding, Clifford Ross.	*Clinton, Ia.*
Stawicki, Thaddeus	*Chicago*
Tanquary, John Hansford	*Bellmont*
Vale, Leland LeMarr	*Henry*
Waggoner, Athol Leonard	*Lynchburg, Tenn.*
Wilhelm, Werner Henry	*Chicago*
Wischnia, Louis	*Chicago*
Wisniewski, Frank Edward	*Chicago*
Woelffer, Roy William	*Lake Mills, Wis.*
Woods, Archie MacLean	*Chicago*

SPECIAL STUDENTS.

Second Year.

Baird, Frank, Jr.	*Harvard*
Dahms, Arthur August	*Chicago*
Dancey, John Leonard	*Malden*
Erickson, Arthur Henry	*Chicago*
Goldstine, Harry	*Chicago*
Hedberg, Charles Hilding	*Chicago*
Huebner, Charles Lawrence	*Chicago*
Schultz, Alfred Edward	*Waterman*
Stech, Frank James	*Chicago*

First Year.

Aman, Joseph Michael	*Chicago*
Anderson, Elwood	*Ephraim, Utah*
Anderson, LeRoy Eugene	*Moline*
Beckert, LeRoy	*Chicago*
Bland, Frederick Vincent	*Chicago*

Braude, Leon	*Chicago*
Brauns, Hans William	*Chicago*
Brodsky, Dan	*Chicago*
Broling, Clarence Theodore	*Chicago*
Camp, Arthur Louis	*Macomb*
Cappells, Walter Sol	*Chicago*
Ceynowa, Joseph Anton	*Chicago*
Cheney, Albert Merrill	*Chicago*
Corleto, Joseph Frank	*Chicago*
Czarnecki, Frank John	*Chicago*
Dahlman, Vernon John	*Chicago*
DeRosa, Anthony	*Pocatello, Idaho*
DeWitt, Charles Roy	*New Vienna, Ia.*
Ferring, Alphonse Peter	*Chicago*
Foreman, Daniel	*Chicago*
Fox, Milton Mitchell	*Chicago*
Grund, Charles Hugo, Jr.	*Witt*
Hamrak, Mike	*Chicago*
Hanichen, Carl William	*Rockefeller*
Harden, Leslie Eugene	*Chicago*
Havranek, Charles Joseph	*Chicago*
Hayward, Claude Henry	*Chicago*
Heimeshoff, John Theodore	*Chicago*
Hejna, George	*Chicago*
Hladik, James	*Chicago*
Holmes, Bert Edward	*Chicago*
Huhn, William	*Chicago*
Jaglowski, Anton Sylvester	*Chicago*
Kartanas, Anthony George	*Streator*
Keefrey, Edward William	*Chicago*
Kochanski, Stephen Bernard	*Chicago*
Korschak, James	*Chicago*
Kremer, Louis Martin	*Petersburg*
Krueger, Armin Charles	*Pekin*
Kuecks, Willis Carl	*Chicago*
Kuklinski, John Stanislaus	*Rock Island*
Larson, Clarence Oscar	*Chicago*
Levinowitz, Leopold	*Witt*
Lewis, Edward Roy	*Chicago*
Lisec, Otto	*Macomb*
McCourt, Hugh Frank	*Kankakee*
Marr, Leo George	*Chicago*
Mayzels, Henry	*Ft. Wayne, Ind.*
Meinzen, Arnold Ernest	*Chicago*
Metz, Harry	*Chicago*
Miehlich, William Peter	*Chicago*
Mitchell, Sherman Edward	*Chicago*
Morava, George Anton	*Chicago*
Nemec, George Edward	*Chicago*
Nowak, William	*Chicago*
Olson, George Ray	*Chicago*
Paprocki, John Henry	*Springfield*
Phillips, Thomas Francis	*Alvarado, Va.*
Reid, Ambrose	*Alvarado, Va.*
Reid, Roswell	*Chicago*
Ricebaum, Joseph	*Chicago*
Rozanski, Leo Philip	*Chicago*
Sadilek, William	*Chicago*
St. Pierre, Alfred Joseph	*Chicago*
Solomon, Joseph	*Chicago*
Subert, George Anton	*Chicago*
Szajek, Frank	*Chicago*
Taylor, Willis Jones	*Peoria*
Throckmorton, Lloyd Earl	*Peoria*
Tischer, Elmer Albert	*Chicago*
Walters, John Remington	*Chicago*
Waurzinski, Chester Thaddeus	*Chicago*
Wurtzburg, Joseph Edward	*Chicago*
Zarobsky, Frank James	*Chicago*

INDEX

Page
Admission 11
Advanced Standing 12
Announcement of the Session.... 7
Bacteriology, Courses in 23
Botany, Course in....15, 23
Building, Description of.... 8
Calendar of the School Year.... 1
Chemistry, Courses in....14, 15, 19, 20, 22
Course, Shorter, for Ph. G.... 13
Course, Longer, for Ph. C.... 20
Degrees 27
Employment, Opportunities for.... 26
Entrance Examination 12
Entrance Requirements 11
Entrance as a Special Student.... 12
Equipment, Description of....8 to 11
Fees 25
Graduation Requirements 12
History 6
Library 11
Materia Medica, Courses in....15, 19
Pharmacognosy, Courses in....15, 20
Physiology, Course in....13, 14, 18, 19, 23
Physiology, Courses in.... 15
Prizes 24
Requirements for Entrance....11, 12
Requirements for Graduation.... 12
Students, List of....28 to 31
Text Books 24

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1915/16

University of Illinois
School of Pharmacy

(CHICAGO COLLEGE OF PHARMACY)

Announcement
1915 - 1916

REGISTER FOR 1914 - 1915

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

URBANA

EDMUND J. JAMES, Ph. D., LL. D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures, History, Economics and Accountancy, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy, Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design; Ceramics).

The College of Engineering (Architecture; Architectural, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering).

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Veterinary Science; Agricultural Extension; Teachers' Course; Household Science).

The College of Law (Three years' course).

The School of Education

The Courses in Business (General Business; Banking; Accountancy; Railway Administration; Insurance; Courses for Commercial Teachers and for Commercial and Civic Secretaries.)

The Courses in Journalism

The Course in Chemistry and Chemical Engineering

The Courses in Ceramics and Ceramic Engineering

The School of Railway Engineering and Administration

The School of Music (Four years' course)

The School of Library Science (Two years' course)

The College of Medicine (In Chicago).

The College of Dentistry (In Chicago)

The School of Pharmacy (in Chicago; Ph.G. and Ph.C courses)

The Summer Session (Eight weeks).

Experiment Stations: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; Mine Rescue Station.

The Library Collections contain (June 1, 1915) 352,000 volumes, including the library of the State Laboratory of Natural History (8,500 volumes), the Quine Medical Library (14,000 volumes), and the library of the School of Pharmacy (2,000 volumes).

For Catalogs and information, address

THE REGISTRAR,
Urbana, Illinois.

CALENDAR—1915-1916

1915

Sept. 20, Monday	Registration day
Sept. 21, Tuesday, 11 a. m.	Junior lectures begin
Sept. 22, Wednesday, 10 a. m.	Senior lectures begin
Nov. 25, Thursday	Thanksgiving Day, holiday
Dec. 18, Saturday, 5 p. m.	Holiday recess begins

1916

Jan. 3, Monday, 9 a. m.	Instruction resumed
April 19, Wednesday	Term for candidates for graduate pharmacy closes
April 23 to 30, inclusive	Spring recess—pharmaceutical chemist course
April 26, Wednesday, 2 p. m.	Commencement
June 9, Friday	Term for candidates for pharmaceutical chemist closes

The College Building

FIFTY-SIXTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

Michigan Boulevard and Twelfth Street
Chicago, Illinois

SESSION OF
1915-1916

REGISTER
FOR
1914-1915

CHICAGO ∴ PUBLISHED BY THE UNIVERSITY

THE BOARD OF TRUSTEES

Members Ex-Officio

The Governor of Illinois
Hon. Edward F. Dunne, Springfield

The President of the State Board of Agriculture
*James K. Hopkins, Princeton

The Superintendent of Public Instruction
Hon. Francis G. Blair, Springfield

Elected Members

(Term, 1911-1917)
William L. Abbott, 120 West Adams Street, Chicago
Mary E. Busey, Urbana
Otis W. Hoit, Geneseo

(Term, 1913-1919)
Ellen M. Henrotin, 1656 North LaSalle Avenue, Chicago
John R. Trevett, Champaign
Florence E. Watson, Iola

(Term, 1915-1921)
Robert F. Carr, 2005 McCormick Building, Chicago
Laura B. Evans, Taylorville
Robert R. Ward, Benton

Officers of the Board

President, William L. Abbott, 120 West Adams Street, Chicago
Secretary, Harrison E. Cunningham, Urbana
Treasurer, Hazen S. Capron, Champaign
Comptroller, William B. Castenholtz, Urbana

Committee on the School of Pharmacy

Laura B. Evans, Chairman
William L. Abbott
Otis W. Hoit

Advisory Board to the School of Pharmacy

G. C. Fischer, Galesburg
John C. Wheatcroft, Grayville
Herman Fry, Chicago
A. [illegible] C. Ackermann, Chicago
F. Lueder, Peoria

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*Deceased May 20, 1915.

C
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1915/16

FACULTY—1914-15

Edmund J. James, Ph.D., LL.D., *President of the University.*

William Baker Day, Ph.G., *Acting Dean, Secretary of the Faculty; Professor of Materia Medica and Botany.*

Clyde Mason Snow, Ph.G., *Assistant Professor of Pharmacy*

Eldin Verne Lynn, A.B., M.A., *Instructor in Chemistry*

Bernard Fantus, M.D., *Lecturer on Physiology*

Edmund Norris Gathercoal, Ph.G., *Instructor in Pharmacognosy*

Henry William Colson, Ph.C., *Assistant in Chemistry*

Ben Lee Eicher, Ph.C., *Assistant in Pharmacy*

SCHOOL OF PHARMACY

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and the vicinity in 1859, for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Allegheny Mountains. Members and friends contributed money, books, apparatus, and supplies, teachers were secured, and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1860. The war caused a suspension of teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 instruction was resumed for the second time; it has since continued without interruption.

"The Pharmacist," a monthly journal, published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry, and vegetable histology, were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the school, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building, located at Michigan boulevard and Twelfth street. The new quarters are more commodious than the School has ever before enjoyed, and the facilities for instruction have been increased.

ANNOUNCEMENT

The fifty-sixth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 21, 1915, at eleven o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Wednesday, April 26, 1916, on which day the graduating exercises will be held. The longer course will close June 9, 1916.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

THE COLLEGE BUILDING

The college building, located on the northwest corner of Michigan boulevard and Twelfth street, is a substantial brick structure, five stories in height. It has a frontage of fifty feet on Michigan avenue and one hundred seventy feet on Twelfth street. There are windows on four sides, giving the necessary light, and the rooms are heated by steam throughout. The school has the exclusive use of the four upper floors. Elevator service is provided.

The location is near to the center of the city and convenient to the various lines of transportation, yet removed from the noise of the business district.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue, and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city.

The Lecture Halls

The lecture halls are three in number and are arranged one above the other, occupying the east end of the building. The seating capacity of these rooms ranges from one hundred fifty to two hundred persons. These halls have both south and east light from many windows, and are provided with blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

The laboratories are six in number, including laboratories for qualitative analysis, quantitative analysis, advanced chemistry, pharmacognosy, general pharmacy and dispensing. The total capacity of these laboratories is 348 students.

The Qualitative Laboratory

The qualitative laboratory is 43 by 51 feet in size, has both north and south light, is provided with work stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Laboratory for Pharmacognosy

The Quantitative Laboratory

The quantitative laboratory is 35 by 48 feet in size, and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use.

The Laboratory for Advanced Chemistry

The laboratory for advanced chemistry is 21 by 40 feet in size, has good light, and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist, and is equipped for the purpose with analytical balances, combustion furnace, polariscope, spectroscopes, etc.

The Laboratory for Pharmacognosy

The laboratory for pharmacognosy, 26 by 51 feet in size, is situated on the third floor. Desks are provided for sixty-eight students. Sixty-four compound microscopes, magnifying from seventy-five to five-hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a number of illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

For class work in bacteriology, additional equipment is provided; this includes immersion objectives and Abbe condensers for eighteen microscopes, sterilizers, incubators, and the usual bacteriological equipment. A projection microscope is provided.

The Pharmaceutical Laboratory

The pharmaceutical laboratory occupies a room 43x51 feet in size, situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, metric weights, etc. Collections of chemical and pharmaceutical products and files of prescriptions are also to be found here.

The Dispensing Laboratory

The dispensing laboratory, designed for instruction in compounding and dispensing prescriptions, is situated at the west end of the fourth floor, and has light from three sides. This laboratory is 32 by 47 feet in size. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. This laboratory will accommodate classes of forty students working at once.

The Library

The library adjoins the office on the third floor. It contains about two thousand volumes, including, in addition to the usual works of reference, many rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Students' Rooms

A reading room and locker room on the third floor is provided with 238 steel lockers for students' coats, hats, and books. A smaller room for women students exclusively is also provided.

ADMISSION

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto.

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must have completed two years' work in an accredited high school or the full educational equivalent. *Beginning in September,* 1916, *the requirements for admission to the course leading to the degree of Graduate in Pharmacy will be graduation from an accredited high school, including the completion of* 15 *acceptable units of high school work, or the full educational equivalent.*

Entrance Examinations

For the benefit of those candidates for admission who are unable to present credentials such as will satisfactorily meet the foregoing requirements, entrance examinations will be conducted by the Registrar of the University at the buildings of the College of Medicine, on the corner of Congress and Honore streets, Chicago, September 22-24, 1915. These examinations will include all the subjects accepted by the University for admission.

Candidates for admission by examination to the shorter course, leading to the degree of Graduate in Pharmacy, are required to pass in a sufficient number of subjects to give eight units of credit; for the longer course, leading to the degree of Pharmaceutical Chemist, fifteen units of credit must be made by examinations. A program of the entrance examinations will be sent on request.

Advanced Standing

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

Special Students

Registered pharmacists, assistants or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students must be twenty-one years of age or over and be qualified to do the work of the School. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

Requirements for Graduation

The Degree of Graduate in Pharmacy.

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

The Degree of Pharmaceutical Chemist.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSES OF INSTRUCTION

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

Pharmacy—Junior Year

1. *Introductory*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

1a. *Pharmaceutical Arithmetic.*—Attention is given to the several phases of pharmaceutical arithmetic: the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; a review of common and decimal fractions with problems and demonstrations, and drills in percentage and alligation as applied to pharmaceutical preparations.

2. *Operative Pharmacy*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its source and uses as involved in the many processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes, with their dependent separative operation filtration, extraction, and their modifications are considered.

3. *Galenical Preparations of the United States Pharmacopoeia and National Formulary.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physician's prescriptions.

Chemistry—Junior Year

1. *Theoretical Chemistry.*—As an introduction to the subject, the formation of new substances, combustion, reduction, and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions, the laws of Boyle, Charles, and Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ, and equations, and the quantities entering into chemical reactions. The general properties of acids, bases, and salts, are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolitic dissociation, and the ions. These lectures are supplemented with laboratory exercises throughout, and particular attention is given to stoichiometry.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also, certain typical compounds and reactions are studied in such manner as to explain more fully the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the metals, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany—Junior Year

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are illustrated and described, and drill is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants: its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in the organs of the plant.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

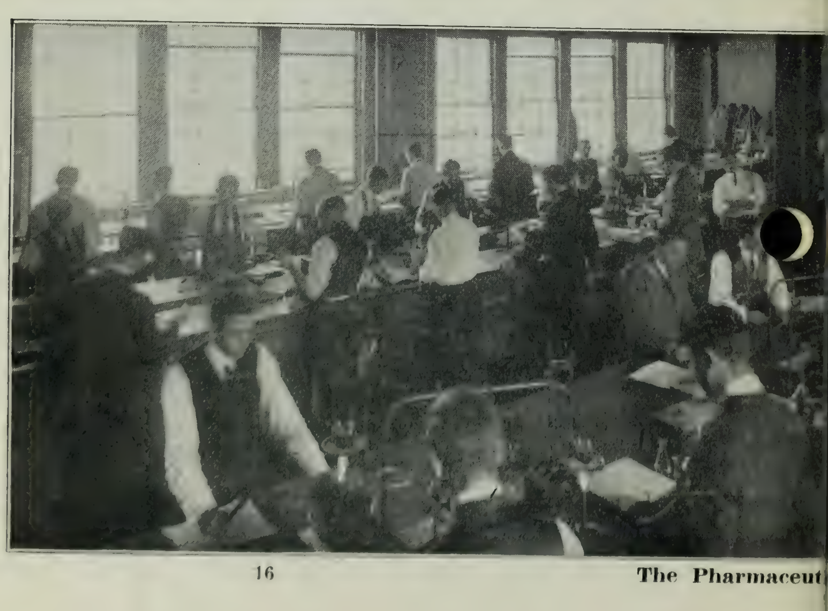
3. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plants and proceeds through the various natural orders and families of the vegetable kingdom as far as dicotyls. The characters of the plants, their habits and products, the commercial history of the parts employed, proximate principles, preparations, therapeutic action, and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given to all drugs included in the pharmacopœia and national formulary.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in materia medica, taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are indicated.

5. *Physiology.*—The pharmacist is expected to be acquainted with the physiological effects of the medicines and the poisons which he handles. Hence physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room, and the human skeleton are used to illustrate the subject. The more common, morbid conditions and the action of the chief drugs used for their relief are mentioned, and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

The Pharmac



The Pharmaceut

ecture Hall

Laboratory

Pharmacy—Senior Year

7. *Extractive Preparations.*—The simplest forms, infusions, and decoctions are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations being illustrated and their relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections, and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in order of their consistence: ointments, cerates, suppositories, and plasters; their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity, and strength, and their pharmaceutical preparations, medicinal uses, and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols, and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles, are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums, and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, and posology and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive prepara-

tions, tinctures, extracts, fluid extracts, and resins; also the manufacture of scaled and granular salts and the preparations of the national formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates, and pills with various coatings. Those for external use, including ointments, plasters, and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures typical of all ordinary and many extraordinary prescriptions, are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages, are features of the exercises. Here the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of which have been written by physicians who are yet in active practice.

Chemistry—Senior Year

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, the principles of gravimetric analysis are discussed, and opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

Materia Medica—Senior Year

6. *Materia Medica.*—This course is a continuation of materia medica 3 (p. 15). It begins with the drugs derived from the dicotyls and considers the remaining vegetable drugs as well as the drugs derived from the animal kingdom.

The habitat, commercial history, method of preparation, medical properties, uses, and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the junior year (page 15), this laboratory study closely following the lectures on materia medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, such drugs as are most generally used are selected for study. Attention is given to the methods employed in the detection of adulterations in powdered drugs, and practice is afforded in the application of these methods to the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a course leading to the degree of Pharmaceutical Chemist. This course comprises two annual sessions of thirty-seven weeks each, with instruction on five days each week, amounting to about thirty-three hours weekly, or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph.G degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 13 to 20), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph.G. course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis, and molecular concentration or mass action to analytical methods. After the analysis of complex inorganic mixtures, the tests of purity described by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities, such as arsenic, copper, lead, etc. The course concludes with a study of the metals, including many of the less common ones.

The Quantitative Analytical Laboratory

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehydes (detection and estimation of formaldehyde, class reactions for aldehydes), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose, and starch by both chemical and optical methods), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products, and the determination in organic compounds, of carbon and hydrogen, by combustion, and of the halogens, sulphur, etc., by the Carius method.

New Remedies.—In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the new remedies, their chemical constitution, derivation, tests for identity and purity, and incompatibilities, together with their synonyms and trade names, particular attention is given these new remedies, especially the so-called "synthetics," as a part of the course in organic chemistry (Chemistry 5).

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine is discussed and the application of the methods of analysis previously studied in the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, and the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied in previous courses are applied to milk, butter, fats, oils, baking powder, and beverages, and are supplemented by special methods.

Pharmacy.—The work in pharmacy is chiefly an elaboration of the Ph. G. course.

Operative Pharmacy is extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystalization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties: dermatology, opthalmology, laryngology, gyneccology, etc. Extemporaneous compounding extends over the more elaborate forms of dosage preparations and to prescriptions of eminent practitioners.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena, and chemical effects, are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed, and due consideration is paid to the ferments, ptomaines, toxins, and anti-toxins. The action of various antiseptics, disinfectants, and bactericidal substances is noted.

Laboratory work receives a large share of attention: students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, colonies, the technic of cover-glass slips of the basic forms of bacteria, and their morphologic characteristics.

Bacteriologic methods in the examination of milk, air and water form a part of the course.

Vegetable Histology.—The course in histology is preparatory to the course in microscopic pharmacognosy which follows it.

Applied Microscopy.—A study of important powdered drugs and spices, with their substitutes and adulterants, is made, and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce is undertaken, and instruction in the microscopic examination and identification of the urinary sediments, blood, pus, tubecasts, and crystalline substances, forms a part of the course.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, is given, and affords practical field instruction in plant classification and analysis.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those of which the titles are printed in italics.

Chemistry.—Long's Analytical Chemistry, *McPherson & Henderson's Chemistry, Clark's Analytical Chemistry, Haskin's Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

Materia Medica and Botany.—*Culbreth's Materia Medica, Bastin's College Botany,* Gage's Microscopical Methods, Hough & Sedgwick's Human Mechanism, Steven's Plant Anatomy.

Pharmacy.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Arny's Pharmacy, The National Formulary.

Honors and Prizes

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

The Prize Microscope.—Mr. Herman Fry, an alumnus of the School, offers a fine compound microscope as a prize to the senior student who attains the highest average in materia medica and pharmacognosy. Practical work in the laboratory as well as scholarship and attendance will be considered in awarding this prize.

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the school, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

Class Honors, in both the junior and the senior year, are awarded to such students as attain a general average of ninety per cent or above.

Fees and Expenses

MATRICULATION.—The fee for matriculation is five dollars; it is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the student to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coatroom. The remainder will be refunded at the end of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association, is five dollars.

PAYMENT OF FEES.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course. *If the fees are not paid in full within ten days after the session begins, an additional charge of five dollars will be made.*

BOARD AND LODGING.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

BOOKS.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to matriculate early.

Opportunities for Employment

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment ranges from five to ten dollars per week.

State Registration

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy, or register by reciprocity with another state. Illinois reciprocates with the state boards of thirty-one states upon the basis of registration by examination in any one of these states.

The diploma of this School is accepted in lieu of examination for registration in several states, and in others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized, and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. DAY, *Actuary.*

74 East Twelfth Street, Chicago, Ill.

DEGREES—1915

Degree of Pharmaceutical Chemist

Bundy, Carroll Edwin
Miller, William N.
Pelc, Joseph
Scruggs, Edward Palmer

Degree of Graduate in Pharmacy

Anderson, Richard Joel
Baker, Samuel Leon
Bianco, Mike Robert
Boehm, Frederick Evenson
Brekke, Marshall Theodore
Buckrucker, Walter Otto
Davis, Guy Brooks
Davis, Ray Robbins
Drais, Grover Oliver
Eberly, Harry Leo
Fraser, Roy Fred
Geispitz, Victor Leo
Gorham, Louis Andrew
Haffner, Louis Leo
Hawthorne, Ralph
Jacobson, Michael
Jindrich, George William
Johnson, Archie Kirkwood
Kakacek, Joseph John
Krebs, Rudolph Henry
Leckband, Theodore August Joseph
Lesko, Charles James
Malkewicz, Stephen Edward
Marriott, Bates A.
Masterson, Philip Aloysius
Mueller, Franklin Christopher
Niemeyer, Frank Charles
Obermiller, Oswald Edward Fred
Raycraft, Joseph Winfred
Reed, Robert Charles
Seeger, Harold Franklin
Simmons, Bayard Edwin
Slinkard, Ernest Lee
Spalding, Clifford Ross
Stahl, August Ferdinand, Jr.
Strain, Stewart
Woelffer, Roy William
Cooke, Lawson Jacob, (Class '13)
Leib, Fred Lehman, (Class of '14)
Vorsanger, Lillian, (Class of '12)

Certificates

Allen, Monte
Allman, Kenneth Frederick
Borucki, Edward Anthony Felix
Bucke, William Stuhlman
Clay, Byron Eugene
Faulkner, Raymond Earl
Golterman, Richard William
Hojnacki, Sylvester Henry
Johnson, Oscar William
Kanta, Harry
Kral, Edward Joseph
Kvasnicka, Joseph Benjamin
McKenty, Arthur Henry
Neville, Mark Eldon
Poli, Domingo
Rey, Young
Riemer, Edwin Robert
VanderBogart, Walter Alanson
Wischnia, Louis

HONORS

Senior Class

Robert Charles Reed, *Scherer Prize*
Franklin Christopher Mueller, *Fry Prize*
Joseph Winfred Raycraft, *A. Ph. A. Membership in Pharmacy*
Mike Robert Bianco, *A. Ph. A. Membership in Chemistry*
Samuel Leon Baker, *A. Ph. A. Membership in Materia Medica.*

Junior Class

Leo Ayers
William Beckman
Robert Claus
Elmer Erickson
Frank Graham
R. L. Greenwood
Israel Mawrence
Emil Rauschert

LIST OF STUDENTS—1914-1915

COURSE FOR PHARMACEUTICAL CHEMIST

Seniors

Bundy, Carroll Edwin	Sheldon
Combacker, Marie Frances, A.B. (Carroll College 1913)	Ellsworth, Wis.
Miller, William N.	Waterloo, Ia.
Pelc, Joseph	Chicago
Scruggs, Edward Palmer	Livingston, Ala.

Juniors

DiCosola, Anthony	Chicago
Ortmann, Albert Alvin	Kankakee

COURSE FOR GRADUATE IN PHARMACY

Seniors

Allen, Monte	Gray's Lake
Allman, Kenneth Frederick	Rensselaer, Ind.
Anderson, Richard Joel	Chicago
Aron, Fannie Lillian	Chicago
Baker, Sam Leon	Gary, Ind.
Barone, Christopher	Chicago
Bianco, Mike Robert	DuQuoin
Boehm, Frederick Evenson	Neenah, Wis.
Borucki, Edward Anthony Felix	Chicago
Brekke, Marshall Theodore	Rice Lake, Wis.
Brewer, Chester Wellington	Urbana
Bucke, William Stuhlmann	Chicago
Buckrucker, Walter Otto	Chicago
Clay, Byron Eugene	Lena
Datz, Charles Percival	Chicago
Davis, Guy Brooks	Abingdon
Davis, Ray Robbins	Abingdon
Drais, Grover Oliver	Onawa, Ia.
Eberly, Harry Leo	Aurora
Esmond, Wendell R.	Maywood
Faulkner, Raymond Earl	Fulton
Fraser, Roy Fred	Elizabeth
French, Sidney Byington	Lake Geneva, Wis.
Geispitz, Victor	Chicago
Glenn, Jacob F., LL.B. (University of Iowa) 1901	Chicago
Goltermann, Richard William	Forest Park
Gorham, Louis Andrew	Chicago
Haffner, Louis Leo	Bloomington
Hansen, Arthur Leon	Chicago
Hawthorne, Ralph	Alma
Hojnacki, Sylvester Henry	Chicago
Jacobson, Michael	Chicago
Jindrich, George William	Chicago
Johnson, Archie Kirkwood	Joliet
Johnson, Oscar William	Chicago
Kakacek, Joseph John	Chicago
Kasta, Harry	Chicago
Kral, Edward Joseph	Chicago
Krebs, Rudolph	Milford

Kvasnicka, Joseph Benjamin	Chicago
Leckband, Theodore August Joseph	Grand Mound, Ia.
Lesko. Charles James	Chicago
McKenty, Arthur Henry	Chicago
Marriott, Bates A.	Chicago
Masterson, Philip	Clinton, Ia.
Mueller, Franklin Christopher	Jefferson, Wis.
Nelson, Hans Albin	Peoria
Nelson, James Cullent	Houston, Texas
Neville, Mark Eldon	Gray's Lake
Niemeyer, Frank Charles	Stockton
Obermiller, Oswald Edward Fred	Galena
Person, Frank Daniel	Chicago
Poli, Domingo	Guayama, Porto Rico
Raycraft, Joseph Winfred	Springfield
Reed, Robert Charles	Quincy
Rey, Young	Soon Chun, Korea
Riemer, Edwin Robert	Chicago
Ritter, William John	Mattoon
Seeger, Harold Franklin	Beardstown
Simmons, Bayard Edwin	Chicago
Slinkard, Ernest Lee	Grand Junction, Colo.
Spalding, Clifford Ross	Clinton, Ia.
Stahl, August Ferdinand	Chicago
Strain, Stewart	Chicago
VanderBogart, Walter Alanson	Wilmington
Waggoner, Athol Leonard	Lynchburg, Tenn.
Wischnia, Louis	Chicago
Woelffer, Roy William	Lake Mills, Wis.

Juniors

Albright, Mahlon Franklin	Auburn, Ind.
Andrzelczyk, Vincent	Chicago
Bakkers, Arthur	Chicago
Bakkers, Neff Kuyper	Chicago
Baldwin, Edgar	Genoa
Beckman, William	Chatsworth
Black, Waldo Knox	Chicago
Bloom, Irwin	Chicago
Bogard, Asher Holland	Olney
Bradley, James Francis	Charleston
Brierton, Harold	Dixon
Brinkerhoff, Garry Russell	Chicago
Bronner, Paul	Chicago Heights
Claus, Robert	Chicago
Copeland, Thomas Bragg	Grand Junction, Colo.
Cortesi, Dante	Cairo, Egypt
Crisp, John Everett	Jonesboro
Crist, Raymond James	Chicago
Curlee, Raymond Anderson	Ashley
Davidson, Charles Elmer	St. Louis, Mo.
Denson, Ernest Nichols	Chicago
Dewey, Everett William	Lake Mills, Wis.
Diesner, Herbert Otto	Maywood
DuBroff, William	Chicago
Ehrhardt, Clarence	Bellevue, Ia.

Erickson, Elmer	Chicago
Feldsher, Anna Clair	Chicago
Friedl, William John	Chicago
Garrity, Vincent	Spring Valley
Gasen, Harry	Chicago
Graham, Frank	Carlinville
Greenwood, Robert Lee	Chicago
Harvey, Roy Ernest	Alma
Holden, Edwin Cyrus	Chicago
Imes, Ward Rupert	Chicago
Jacks, Alan Wallace	Ottawa
Kostka, Walter John	Chicago
Leo, Joseph Edward	Chicago
Lipschultz, Minnie Pauline	Chicago
Litson, Will Carleton	Romney, Ind.
Malick, Hike Moses	Urumia, Persia
Marsicano, Frank	Melrose Park
Marvel, Forest Elmer	Fullerton, Nebr.
Mawrence, Israel	Chicago
Mazzei, Orazio	Chicago
Miller, Carl Theodore	Chicago
Miller, Thomas	Chicago
Mordente, Anthony Francis	Chicago
Mott, William Davis	Princeton, Ky
Nesbitt, Orlo Floyd	Quincy
Newberry, George Morris	Rock Island
Nichols, Hiram Vanderbilt	Chicago
Oveson, Iver Anton	Chicago
Pieper, Henry Anthony	Jacksonville
Porter, Lillian	Chicago
Rakas, Frank	Chicago
Rauschert, Emil Paul	Lake Mills, Wis.
Ritzman, Robert	Orangeville
Rylander, Reuben August Ferdinand	Joliet
Schemmel, Alfred Lawrence	Dyersville, Ia.
Schultz, Ernest Christian	Columbus, Wis.
Sikucka, Jeanette Helen	Chicago
Sikyta, Henry William	Chicago
Steffen, Edward Diedrich	Whitefish, Mont.
Tate, William Mack	Pine Bluff, Ark.
Templeton, James William	Rockport, Mo.
Thoroman, Ralph Rickey	Mt. Sterling
Turner, Henry Owen	St. Louis, Mo.
Underriner, Edwin Joseph	Effingham
Underwood, Ivan J.	Clinton
Van Kempema, Richard	Chicago
Vlazny, John George	Chicago
Weaver, Robie Holland	Muncie, Ind.
Weinstein, Charles	Chicago
Whitney, Guy Vernon	Wenona
Wokoun, Frank	Chicago
Wong, Tse Woon	Hong Kong, China
Zajicek, Adolph	Chicago

SPECIAL STUDENTS

Second Year

Anderson, LeRoy Eugene	Moline
DeWitt, Charles Roy	Pocatello, Idaho
Gordon, Samuel Michael	Chicago
Grund, Charles Hugo, Jr.	Chicago
Hanichen, Carl William	Chicago
Harden, Leslie Eugene	Rockefeller
Hayward, Claude Henry	Chicago
Jaglowski, Anton Sylvester	Chicago
Larson, Clarence Oscar	Rock Island
Levinowitz, Leopold	Chicago
Lisec, Otto	Chicago
Marr, Leo George	Kankakee
Metz, Harry	Chicago
Nemee. George Edward	Chicago
Olson, George Ray	Chicago
Paprocki, John Henry	Chicago
Trippett, Sidney Bradley	Texarkana, Ark.
Throckmorton, Lloyd Earl	Peoria
Wiles, Clarence Edward	Kankakee

First Year

Allen, James Perry, Jr.,	Griggsville
Ayers, Leo	Chicago
Fox, Milton Mitchell	Chicago
Gustafson, Melsor Eugene	Chicago
Hamrak, Mike	Chicago
Havranek, Charles Joseph	Chicago
Holmes, Bert Edward	Chicago
Huhn, William	Chicago
Jordan, Thomas Michael	Chicago
Keefrey, Edward William	Chicago
Korschak, James	Chicago
Kozlowski. Roman Boleslaw	Chicago
Krueger, Armin Charles	Pekin
Lemieux, Eloi Henry	Chicago
Lowe, Charles Edward	Marion, Ind.
McGurk, George Leo	Chicago
McPherson, Andrew William	Chicago
Mitchell, James	Ursa
Nyberg, Carl Walter	Clinton, Ia.
Paprocki, John Henry	Chicago
Perzik, William Harry	Chicago
Real, Dennis Bernard	Moline
Sansone, Claude	Chicago
Schroeder, Albert Otto	Palatine
Weber, Paul Ernest	Herscher
Zarobsky, Frank James	Chicago
Zalubowski, Anton	Chicago

INDEX

Admission 11
Advanced Standing 12
Announcement of the Session 7
Bacteriology, Courses in 23
Botany, Course in 15, 23
Building, Description of 8
Calendar of the School Year 1
Chemistry, Courses in 14, 15, 19, 20, 22
Course, Shorter, for Ph. G. 13
Course, Longer, for Ph. C. 20
Degrees 27
Employment, Opportunities for 26
Entrance Examination 12
Entrance Requirements 11
Entrance as a Special Student 12
Equipment, Description of .... 8 to 11
Fees 25
Graduation Requirements 12
History 6
Library 11
Materia Medica, Courses in 15, 19
Pharmacognosy, Courses in 15, 20
Pharmacy, Course in 13, 14, 18, 19, 23
Physiology, Courses in 15
Prizes 24
Requirements for Entrance 11, 12
Requirements for Graduation 12
Students, List of .... 28 to 31
Text Books 24

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UNIVERSITY OF ILLINOIS

School of Pharmacy

1916-17

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
CHICAGO

THE UNIVERSITY OF ILLINOIS
THE STATE UNIVERSITY.
Urbana

Edmund J. James, Ph. D., LL. D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS:

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Urbana, Ill.

Fifty-Seventh Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

SESSION OF 1916-1917
REGISTER FOR 1915-1916

PUBLISHED BY THE UNIVERSITY
CHICAGO

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1916/17

FACULTY—1915-16

Edmund J. James, Ph.D., LL.D., *President of the University.*

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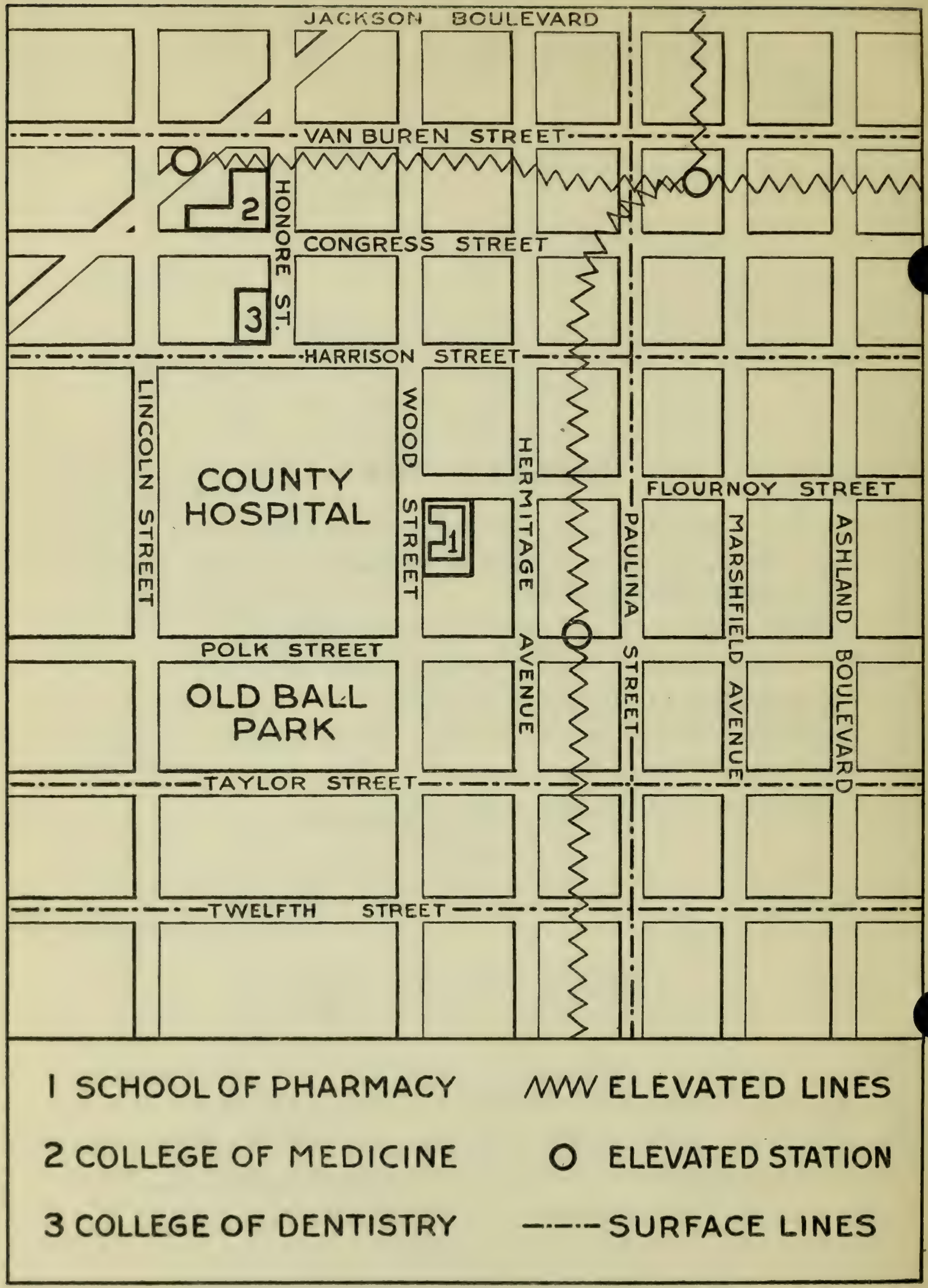
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TAYLOR STREET
TWELFTH STREET
1
2
3
1 SCHOOL OF PHARMACY
2 COLLEGE OF MEDICINE
3 COLLEGE OF DENTISTRY
ELEVATED LINES
ELEVATED STATION
SURFACE LINES

CALENDAR—1916-1917

1916

SEPTEMBER 20-22—
Examinations for admission.

SEPTEMBER 25—Monday
Registration day.

SEPTEMBER 26—Tuesday, 11 a. m.
First-year lectures begin.

SEPTEMBER 27—Wednesday, 10 a. m.
Second-year lectures begin.

NOVEMBER 29—Wednesday, 5 p. m.
Thanksgiving recess begins.

DECEMBER 4—Monday
Instruction resumed.

DECEMBER 20—Wednesday, 5 p. m.
Holiday recess begins.

1917

JANUARY 3—Wednesday, 9 a. m.
Instruction resumed.

FEBRUARY 3—Saturday
First Semester ends.

FEBRUARY 5—Monday
Second Semester begins.

FEBRUARY 12—Monday
Lincoln day—holiday.

FEBRUARY 22—Thursday
Washington day—holiday.

APRIL 5—Thursday, 5 p. m.
Easter recess begins.

APRIL 10—Tuesday, 9 a. m.
Instruction resumed.

MAY 30—Wednesday
Decoration day—holiday.

JUNE 6—Wednesday
Examinations end.

JUNE 13—Wednesday
Commencement of the University of Illinois at Urbana.

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry, and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the school, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building, located at Michigan boulevard and Twelfth street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy streets and comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916. Here the School will have a better equipment and increased facilities for instruction.

ANNOUNCEMENT

The fifty-seventh annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 27, 1916, at eleven o'clock in the morning.

The course will continue thirty-six weeks. The graduating exercises will be held with the other departments of the University on Wednesday, June 13, 1917.

This school offers to young men and young women the technical training necessary for the successful practise of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In several States a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men of character, who are industrious and honest, who have or will develop business ability, and who possess adequate phamaceutical training are constantly sought. The demand for such young men will always far exceed the supply and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

THE NEW LOCATION

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street and Ashland Avenue surface lines all pass within a short distance of the School.

There are many boarding and rooming places in the vicinity where accommodations can be had at reasonable rates.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

THE COLLEGE BUILDINGS

The college buildings include two substantial brick structures, which are to be connected at each floor by a stair-tower building now under construction. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, a recitation room, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for quantitative analysis, the laboratory for qualitative analysis and several private laboratories for the teachers, as well as store rooms and supply rooms.

THE LECTURE HALLS

The third and fourth floors of the College Building are largely occupied by an auditorium, capable of seating three hundred persons. Excellent light is afforded and the hall is comfortably seated. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and fifty. A smaller hall on the same floor is provided with school desks for ninety persons, and there is also a recitation room seating thirty.

THE LABORATORIES

Four general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about two hundred and fifty students working at one time.

THE PHARMACEUTICAL LABORATORY

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

THE LABORATORY FOR PHARMACOGNOSY

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica cabinet of over three hundred samples of crude drugs, to which students have access. The equipment is new.

The Bacteriological Laboratory

The Bacteriological Laboratory is situated on the second floor of the College Building and has accommodations for sixteen students. The equipment includes sixteen microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided.

The Qualitative Laboratory

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stands for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort-stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, water, and hydrogen sulphide are piped, are provided. The equipment of this laboratory is new.

The Quantitative Laboratory

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use. The equipment is new.

The Library

The Library adjoins the office on the first floor of the College Building. It contains about three thousand volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Museum

The Museum is situated on the third floor of the College Building. It has north light and is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Here is also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

The Students' Rooms

A locker room for the students is provided with 200 steel lockers for coats, hats, and books. A smaller room for women students is also provided.

ADMISSION

Applicants for admission must be at least seventeen years of age and must be graduates of accredited high schools. Their high-school course must have included 15 acceptable units of high-school work, or the full educational equivalent.

DEFINITION OF "UNIT"

By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall be not less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall be not less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-school students ordinarily take four subjects at a time throughout the four years of the high-school course, 15 units represent approximately four years of high-school work.

HOW THE ENTRANCE REQUIREMENT MAY BE MET

The high-school requirement may be satisfied either by certificate or by examination.

HIGH-SCHOOL CREDITS BY CERTIFICATE

High-school credits will be accepted by certificate from the following sources:

1. From high schools and academies in the State of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

HIGH-SCHOOL CREDITS BY EXAMINATION

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of the entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

SPECIAL STUDENTS

Registered pharmacists, assistants or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students must be *twenty-one years of age* or over and be qualified to do the work of the School. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

The Degree of Graduate in Pharmacy

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

The Degree of Pharmaceutical Chemist

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty-six weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practise.

Pharmacy—First Year

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity. Lectures and recitations, First semester.

1a. *Pharmaceutical Problems.*—Attention is given to the several phases of pharmaceutical arithmetic: the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; a review of common and decimal fractions with problems and demonstrations, and drills in percentage and alligation as applied to pharmaceutical preparations. Lectures and recitations, First semester.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstration in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its source and uses as involved in the many processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes, with their dependent separative operations, filtration, extraction, and their modifications, are considered. Lectures and recitations, First semester.

3. *Galenical Preparations of the United States Pharmacopoeia and National Formulary.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia. Lectures and recitations, Second semester.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, their pharmaceutical and technical uses are described, and their posology and therapeutic applications presented. Lectures and recitations. Second semester.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director. One laboratory period each week. Both semesters.

6. *Dispensing.*—The exercises comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements. In this connection the student becomes acquainted with the terms commonly occurring in physicians' prescriptions. One laboratory period each week. Second semester.

CHEMISTRY—FIRST YEAR

1 *Theoretical Chemistry.*—A course in the general principles of chemistry. These principles are brought out in connection with the study of the nonmetallic elements. Boyle's, Charles's and Avogadro's Laws are briefly considered. The atomic and molecular hypotheses are discussed. The nature of acids, bases, and salts is brought out from the standpoint of the modern theories of ionization, dissociation, etc. Stoichiometry also receives extended consideration. Two lectures, one recitation, a week. First semester.

2. *General Chemistry.*—A study of the metals in which the theories and principles of chemistry learned in course 1 are applied. Special attention is given in this course to substances which are of pharmaceutical importance. Two lectures, one recitation a week. Second semester.

3. *Qualitative Analysis.*—A course in the identification of the various inorganic acid radicals and the more common metals. This course includes the examination of about thirty unknown mixtures; also a study of the various special tests of the United States Pharmacopœia and the examination of medicinal chemicals for identity and purity. Lectures and laboratory. Both semesters.

MATERIA MEDICA AND BOTANY—FIRST YEAR.

1. *Pharmaceutical Botany.*—This course deals chiefly with the flowering plants. The development and functions of the plant body are described and its organs, the root, stem, leaves, flowers, fruit, and seed, are successively considered. Special reference is made to the use of these as drugs and to the cultivation of medicinal plants.

In the laboratory selected plants, chiefly medicinal, are studied and are used to illustrate the subjects presented in the lectures. Two lectures, one recitation, one laboratory period each week. First semester.

2. *Plant Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the arrangement of these tissues in the organs of the plant.

In connection with this course the technique of the microscope is explained and the history of the development of the instrument, the optical principles involved in its construction, the function of each part and the laws of refraction and reflection are considered. Instruction and practise are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown. One laboratory period a week. Both semesters.

3. *Physiology and Hygiene.*—In this course the peculiar needs of pharmaceutical students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are presented. Charts, specimens from the dissecting room, and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned, and practical instruction is given in caring for emergency cases until medical or surgical help arrives. Two lectures and one recitation a week. First semester.

4. *Materia Medica.*—The general principles of materia medica are considered, a classification of medicines based on their therapeutic action is presented, attention is called to incompatible drugs, and a drill upon posology is given; toward the close of the term, a number of lectures are devoted to the subject of toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs. Two lectures and one recitation a week. Second semester.

Pharmacy—Second Year

7. *Extractive Preparations.*—The simplest forms, infusions, and decoctions are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations being illustrated and their relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis. Lectures and recitations. First semester.

8. *Mixtures of Solids.*—These are considered, also, in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections, and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in order of their consistence: ointments, cerates, suppositories, and plasters; their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration. Lectures and recitations, First semester.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity, and strength, and their pharmaceutical preparations, medicinal uses, and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols, and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles, are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums, and their value as pharmaceutical and medicinal agents, ends the course. Lectures and recitations. Second semester.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, and posology and in the magistral forms for the therapeutic uses met with in dispensing, with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring special interpretation. Lectures and recitations. Second semester.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins; also the manufacture of scaled and granular salts and the preparations of the national formulary. One laboratory period of four hours a week. Both semesters.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates, and pills with various coatings. Those for external use, including ointments, plasters, and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures typical of all ordinary and many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages, are features of the exercises. Here the School is fortunate in having acquired files of bona fide prescriptions, fully twenty-five thousand in number, about half of which have been written by physicians who are yet in active practice. One laboratory period of two hours a week. Both semesters.

CHEMISTRY—SECOND YEAR

4. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. The analytical processes of organic chemistry are first considered. The simple hydrocarbons and their derivatives, such as the alcohols, ethers, aldehydes, acids, esters, and carbohydrates, are then discussed. The aromatic hydrocarbons and their derivatives consume about one-third of the time of this course. All through the importance of the host of synthetic remedies is not lost sight of and the character of these substances is constantly dealt with. The alkaloids receive special attention during the closing weeks of this course. Two lectures, one recitation a week. Both semesters.

5. *Quantitative Analysis.*—A course in gravimetric and volumetric analysis. The most typical examples of gravimetric analysis, both metals and acid radicals, are selected for study. The work is checked on carefully prepared unknowns. Practically all the volumetric operations of the United States Pharmacopœia are taken up and are applied to the assaying of medicinal preparations and chemicals. The qualitative reactions of important pharmaceutical organic substances are also studied, and finally the alkaloidal assay of drugs with typical examples in the laboratory for practise. Lectures and laboratory. Both semesters.

MATERIA MEDICA—SECOND YEAR

5. *Materia Medica.*—This course begins with the consideration of the lowest drug-yielding cryptogamic plants and proceeds through the various natural

orders and families of the vegetable kingdom. The characters of the plants, their habits and products, the commercial history of the parts employed, proximate principles, preparations, therapeutic action, and doses are all mentioned and dwelt upon according to the importance of the drug. Toward the close of the term the drugs derived from the animal kingdom are considered. Attention is given to all drugs included in the pharmacopœia and national formulary. Two lectures and one recitation a week. Both semesters.

6. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. It closely follows the lectures in materia medica, taking up the drugs in order as they are discussed in the lectures. Typical specimens of these drugs are given for recognition and description, and characteristic features are indicated. Attention is given to the methods employed in the detection of adulterations in powdered drugs, and practise is afforded in the application of these methods to the examination of commercial drugs. One laboratory period and one written quiz a week. Both semesters.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-six weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practise.

(Note.—For the year 1916-17 only, the senior year of the two-year Ph. C. course, heretofore designated as the Longer Course, will be offered.)

Chemistry—Third Year

6. *Pharmaceutical Assaying.*—A course in the more difficult and exacting assay processes of the U. S. P., such as the detection and estimation of ethyl and methyl alcohol in pharmaceutical mixtures; the detection and estimation of organic acids, aldehydes, ketones, phenols, etc.; the examination of volatile oils; the gasometric assays of the U. S. P.; the more difficult alkaloidal assays, such as the determination of morphine in opium, strychnine in nux vomica, etc. A large number of pharmaceutical preparations and chemicals are examined as to identity, purity, and strength in this course. Lectures, recitations, and laboratory. First semester.

7. *Organic Analysis.*—A course in organic preparations and analysis. Important pharmaceutical and medicinal organic chemicals are selected as typical examples of the various classes of organic compounds, and many of these are prepared and their chemical properties and physical constants determined. Opportunity is afforded for determining melting points, boiling points, specific gravity, etc., by the most exact methods. Lectures, recitations, and laboratory. First semester.

8. *Food Analysis.*—A course in the examination of the more common food products, such as milk, butter, edible oils, sugars (by both optical and chemical methods), flavoring extracts, breakfast foods, flour, vinegar, wines, etc. Lectures, recitations, and laboratory. Second semester.

9. *Physiological Chemistry.*—A course in the action of organic drugs and the relation of chemical constitution to therapeutic action. The chemical analysis of urine is discussed. Lectures and recitations. Second semester.

MICROSCOPY—THIRD YEAR

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants, is made, and opportunity is afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practise in technical methods employed in the examination of these is given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce is undertaken, and instruction in the microscopic examination and identification of the urinary sediments, blood, pus, tubecasts, and crystalline substances forms a part of the course. Lectures, recitations, and laboratory. First semester.

BACTERIOLOGY—THIRD YEAR

1. *Bacteriology.*—The general scope of bacteriology; the history of the development of the science; the general characteristics of bacteria, their morphology, structure, and classification, together with their chemical composition, vital phenomena, and chemical effects, are considered in the lectures. Attention is called to the relation of bacteria to disease; the theories of infection and immunity are discussed, and due consideration is paid to the ferments, ptomaines, toxins, and anti-toxins. The action of various antiseptics, disinfectants, and bactericidal substances is noted.

Laboratory work receives a large share of attention; students are instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, colonies, the technic of cover-glass slips of the basic forms of bacteria, and their morphologic characteristics.

Bacteriologic methods in the examination of milk, air, and water form a part of the course. Lectures, recitations and laboratory. Second semester.

PHARMACY—THIRD YEAR

13. *Operative Pharmacy.*—This course includes the determination of physical constants, specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations, in products of oxidation and reduction, calcinations, etc., are given supplementary to the work in chemistry. The manufacture of official and extra-official preparations is increased with especial reference to such modern preparations as are employed in this country and abroad in various surgical specialties; dermatology, ophthalmology, laryngology, gynecology, etc. Extemporaneous compounding extents over the most elaborate forms of dosage preparations and to prescriptions of eminent practitioners. Lectures, recitations and laboratory. Both semesters.

GENERAL INFORMATION

TEXT BOOKS AND WORKS OF REFERENCE

The books listed below have been selected as the best suited for the students' use in connection with the two-year course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those of which the titles are printed in italics.

Chemistry.—Long's Analytical Chemistry, *McPherson & Henderson's Chemistry, Clark's Analytical Chemistry, Cohen's Theoretical Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

Materia Medica and Botany.—*Culbreth's Materia Medica, Bastin's College Botany,* Gage's Microscopical Methods, Hough & Sedgwick's Human Mechanism, Steven's Plant Anatomy.

Pharmacy.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, *Arny's Pharmacy, The National Formulary.*

HONORS AND PRIZES

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

The Prize Microscope.—Mr. Herman Fry, an alumnus of the School, offers a fine compound microscope as a prize to the senior student who attains the highest average in materia medica and pharmacognosy. Practical work in the laboratory as well as scholarship and attendance will be considered in awarding this prize.

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

Class Honors, in both the junior and the senior year, are awarded to such students as attain a general average of ninety per cent or above.

FEES AND EXPENSES

Matriculation.—The fee for matriculation is five dollars; it is required of all students upon entering the School for the first time.

Tuition Fees.—The tuition fee for each year is ninety dollars. The payment of this fee entitles the student to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the shorter course is required to deposit ten dollars with the Actuary. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coatroom. The remainder will be refunded at the end of the term.

A Diploma Fee of five dollars will be required.

Payment of Fees.—The fees are payable in advance, one-half of the tuition fee at the beginning of each semester. *If the fees are not paid in full within ten days after the semester begins, an additional charge of five dollars will be made.*

Note—For the year 1916-17 only, the senior year of the two-year Ph.C. course, designated as the Longer Course, will be offered and at the same fees as heretofore, namely, one hundred twenty-five dollars tuition and fifteen dollars laboratory deposit.

Board and Lodging.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary at the opening of the session in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment ranges from five to ten dollars per week.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy, or register by reciprocity with another state. Illinois reciprocates with the state boards of thirty-one states upon the basis of registration by examination in any one of these states.

The diploma of this School is accepted in lieu of examination for registration in several states, and in others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized, and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. Day, *Actuary*

701 South Wood Street, Chicago, Ill.

SCHEDULE OF CLASSES—FIRST YEAR
FIRST SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Quiz	Pharmacy Quiz	Botany Quiz
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12m.	Botany Lecture	Botany Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Quiz
	2 to 5 p. m. Section I Chemical Laboratory	2 to 5 p. m. Section II Chemical Laboratory	2 to 5 p. m. Section II Microscopical Laboratory
	2 to 5 p. m. Section II Pharmaceutical Laboratory	2 to 5 p. m. Section I Microscopical Laboratory	2 to 5 p. m. Section I Pharmaceutical Laboratory

SCHEDULE OF CLASSES—FIRST YEAR
SECOND SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Quiz	Pharmacy Quiz	Materia Medica Quiz
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Materia Medica Lecture	Materia Medica Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 5 p. m. Section II Pharmaceutical Laboratory	1 to 5 p. m. Section II Chemical Laboratory	1 to 5 p. m. Section I Pharmaceutical Laboratory
	1 to 5 p. m. Section I Chemical Laboratory	1 to 3:30 p. m. Section I Microscopical Laboratory	1 to 3:30 p. m. Section II Microscopical Laboratory
		3:30 to 5 p. m. Section I Pharmacognosy Laboratory	3:30 to 5 p. m. Section II Pharmacognosy Laboratory

SCHEDULE OF CLASSES—SECOND YEAR

HOURS	MONDAY	WEDNESDAY	FRIDAY
9 to 10 a. m.	Materia Medica Quiz	Pharmacy Quiz	Chemistry Quiz
10 to 11 a. m.	Chemistry Lecture	Chemistry Lecture	Materia Medica Lecture
11 a. m. to 12 m.	Pharmacy Lecture	Materia Medica Lecture	Pharmacy Lecture
1 to 6 p. m.	1 to 6 p. m. Chemical Laboratory	1 to 3 p. m. Section I Microscopical Laboratory	1 to 2 p. m. Pharmacognosy Written Quiz
		3 to 5 p. m. Section I Dispensing Laboratory	2 to 6 p. m. Pharmaceutical Laboratory
		1 to 3 p. m. Section II Dispensing Laboratory	
		3 to 5 p. m. Section II Microscopical Laboratory	

DEGREES—1916

DEGREE OF PHARMACEUTICAL CHEMIST

DiCosola, Anthony
Ortmann, Albert Alvin

DEGREE OF GRADUATE IN PHARMACY

Aron, Fannie Lillian
Beckman, William
Bogard, Asher Holland
Butts, Joseph C.
Claus, Robert
Cortesi, Dante
Crist, Raymond James
Curlee, Raymond Anderson
Davidson, Charles Elmer
Dewey, Everett William
Friedl, William John
Gasen, Harry
Graham, Frank William
Greenwood, Robert Lee
Kostka, Walter John
Lofgren, David
Lowis, Benjamin
Mawrence, Israel
Quartetti, Leonard
Ritzman, Robert Bruce
Schultz, Ernest Christian
Templeton, James William
Thoroman, Ralph Rickey
Underriner, Edwin Joseph
Vale, Leland
Weaver, Robie Rolland
Wilhelm, Werner Fred
Whitney, Guy Vernon
Borucki, Edward A. F. (Class of '15)
Bucke, William Stuhlmann (Class of '15)
Goltermann, Richard William (Class of '15)
Hojnacki, Sylvester Henry (Class of '15)
Huston, Hubert Spangler (Class of '14)
Johnson, Oscar William (Class of '15)
Kral, Edward Joseph (Class of '15)
Kvasnicka, Joseph Benjamin (Class of '15)
Pankau, Francis A. (Class of '14)
Riemer, Edwin Robert (Class of '15)
Vondrasek, Frank Joseph (Class of '14)

CERTIFICATES

Andrzelczyk, Vincent
Bradley, James Francis
Brummall, Anna Belle
DuBroff, William
Erickson, Elmer
Jacks, Alan Wallace
McCanse, Cecil
Marsicano, Frank
Mazzei, Orazio
Rylander, Reuben Ferdinand August
Sikucka, Jeanette Helen
Van Kempema, Richard
Vlazny, John George

HONORS

SENIOR CLASS

Leo Ayers, *Scherer Prize.*

Elmer Erickson, *Herman Fry Prize.*

William Beckman, *Gray Membership in A.Ph.A.*

Robie R. Weaver, *A. Ph. A. Membership in Pharmacy.*

Frank William Graham, *A. Ph. A. Membership in Chemistry.*

Robert Lee Greenwood, *A. Ph. A. Membership in Materia Medica.*

Anthony DiCosola, *A. Ph. A. Membership in Pharmaceutical Chemistry.*

JUNIOR CLASS

Anderson, Ednah Blanche
Bloch, William
Dyniewicz, Hattie Adela
Dyniewicz, Josephine Marion
Pelikan, Alice Eliska
Robinson, Garnsie H.
Schobert, Rudolph Johannes
Snyder, Doyle Albert
Vahlteich, Hans Walter

LIST OF STUDENTS—1915-1916

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

DiCosola, Anthony	*Chicago*
Ortman, Albert Alvin	*Kankakee*

JUNIORS

Anderson, Ednah Blanche	*Dow City, Ia.*
Kaplan, Samuel Salman	*Chicago*
Latsis, Harry Hlia	*Chicago*
Scheiwe, William Albert	*Crete*
Shapiro, Leo Harold	*Chicago*
Slepicka, Irwin Miles	*Cicero*
Ude, Louis Edward	*Carmi*
Wilson, Ruth Frieda	*Chicago*

SPECIAL

Rey, Young (Ph.G., 1915)	*Soon Chun, Korea*

COURSE FOR GRADUATES IN PHARMACY

SENIORS

Albright, Mahlon Frank	*Chicago*
Andrzelczk, Vincent	*Chicago*
Aron, Fannie Lillian	*Chicago*
Bakkers, Arthur	*Chicago*
Barone, Christopher	*Chicago*
Beckman, William	*Chatsworth*
Bogard, Asher Holland	*Olney*
Bradley, James Francis	*Charleston*
Brummall, Anna Belle	*Salisbury, Mo.*
Butts, Joseph C.	*Chicago*
Claus, Robert	*Chicago*
Copeland, Thomas Bragg	*Grand Junction, Colo.*
Cortesi, Dante	*Cairo, Egypt*
Crist, Raymond James	*Chicago*
Curlee, Raymond Anderson	*Ashley*
Datz, Charles Percival	*Chicago*
Davidson, Charles Elmer	*St. Louis, Mo.*
Denson, Ernest Nichols	*DeKalb*
Dewey, Everett William	*Lake Mills, Wis.*
DuBroff, William	*Bellevue, Ia.*
Erickson, Elmer	*Chicago*
Friedl, William John	*Chicago*
Gasen, Harry	*Chicago*
Graham, Frank William	*Carlinville*
Greenwood, Robert Lee	*Chicago*
Hansen, Arthur Leon	*Chicago*
Holden, Edwin Cyrus	*Chicago*
Jacks, Alan Wallace	*Ottawa*
Kostka, Walter John	*Chicago*
Langel, Harry Charles	*Robinson*
Lofgren, David	*Chicago*
Lowis, Benjamin	*Chicago*
McCanse, Cecil C., B.S. (University of Missouri) 1909	*Columbia, Mo.*

Marshall, Bruce Scott	*Chicago*
Marsicano, Frank	*Melrose Park*
Mawrence, Israel	*Chicago*
Mazzei, Orazio	*Chicago*
Person, Frank Daniel	*Chicago*
Porter, Lillian	*Chicago*
Quartetti, Leonard	*Chicago*
Ritzman, Robert Bruce	*Orangeville*
Rylander, Reuben August Ferdinand	*Joliet*
Schultz, Ernest Christian	*Columbus, Wis*
Sikucka, Jeanette Helen	*Chicago*
Templeton, James William	*Rockport, Mo.*
Thoroman, Ralph Rickey	*Mt. Sterling*
Turner, Henry Owen	*St. Louis, Mo.*
Underriner, Edwin Joseph	*Effingham*
Vale, Leland LeMarr	*Henry*
Van Kempema, Richard	*Chicago*
Vlazny, John George	*Chicago*
Weaver, Robie Rolland	*Muncie, Ind.*
Whitley, Walker Edward	*Waterford, Wis.*
Whitney, Guy Vernon	*Wenona*
Wilhelm, Werner Henry	*Chicago*
Wokoun, Frank	*Chicago*

JUNIORS

Agdesteen, Oliver Toby	*Chicago*
Alstaedt, Benjamin William	*Chicago*
Arneson, Wallace Gregory	*Chicago*
Babbitt, Corydon Aephalia	*Chicago*
Bakkers, Neff Kuyper	*Chicago*
Bidwell, Charles	*Albion, Ind.*
Black, Waldo Knox	*Chicago*
Bloch, William	*Chicago*
Borovik, Reuben Ray	*Chicago*
Calderon, Guillermo	*El Paso, Texas*
Catlin, Herbert Murray	*Brookfield*
Chochola, James Joseph	*Chicago*
Christiansen, Carl Bernhard	*Chicago*
Cooban, Frank George, B.S. (Armour Institute, 1915)	*Chicago*
Dillow, Russell Lowell	*Dongola*
Downey, John Patrick	*Chicago*
Dyniewicz, Josephine Marion	*Chicago*
Dyniewicz, Hattie Adela	*Chicago*
Easter, Joseph Henry	*East St. Louis*
Feigl, Ferdinand John	*Chicago*
Ferring, Alphonze Peter	*New Vienna, Ia.*
Florian, Tony Henry	*Chicago*
Fox, Paul Mandal	*South Bend, Ind.*
Frederick, Albert Charles	*Chicago Heights*
Friedley, Andrew Carl	*Chicago*
Fry, Leslie Sanborn	*Chicago*
Furman, Earl Francis	*Lassen, Wis.*
Goldhorn, Ernest	*Chicago*
Goldman, Benjamin	*Chicago*
Green, Leonard Ralph	*Herrin*
Guild, E. Grant	*Geneseo*
Haffner, Carl Francis	*Bloomington*
Heidbreder, Grant Henry	*Quincy*
Hill, Frank Wanless	*Chicago*

Jones, William Leslie	*Peoria*
Jordan, Clement	*Wapella*
Kaminski, Richard Marshall	*Chicago*
Karel, Louis	*Chicago*
Kirchner, Clemence Victor	*DeKalb*
Kline, Beulah	*Downer's Grove*
Langerman, Alexander	*Chicago*
Leone, John Edwin	*Chicago*
Lindh, Carl Wilhelm Birger	*Stockholm, Sweden*
Lundgren, Oscar Ludvick	*Highland Park*
Mandel, Samuel	*Chicago*
Melvin, Edwin James	*Chicago*
Menella, Vincent Robert	*Chicago*
Miller, Carl Theodore	*Chicago*
Miller, Thomas	*Chicago*
Moss, Thomas Cole	*Ottawa*
Mott, William Davis	*Princeton, Ky.*
McDonald, William James	*Murphysboro*
McGinnis, Walter Thomas	*Rochelle*
Neumann, Herbert Leonard	*Chicago*
Newar, Irving Julius	*Chicago*
Oliver, Richard Neil	*Chicago*
Owens, Hubert Fred	*Clinton*
Parker, Donald Lucas	*Vienna*
Pelikan, Alice Eliska	*Chicago*
Pierce, Vernon Prescott	*Chicago*
Pohlman, Paul Henry	*Palatine*
Post, Charles Ezra	*Chicago*
Prutsman, Harold Claude	*Princeton*
Robinson, Garnsie H.	*Rockford*
Ruder, Rose J.	*Chicago*
Schobert, Rudolph Johannes	*Chicago*
Schreyer, Michael	*Chicago*
Sedlacek, George	*Chicago*
Seibert, Lyle Albert	*Ashley*
Sikyta, Henry William	*Chicago*
Simmons, Donald Fletcher	*Girard*
Smith, Francis Parke	*Paris*
Snyder, Dayle Albert	*Astoria*
Spanier, William Charles	*Chicago*
Stark, LeRoy T. D.	*Chicago*
Steffen, Edward Diedrich	*Whitefish, Mont.*
Stegmann, Jacob Christopher	*Portage, Wis.*
Stein, Victor	*Chicago*
Steinweg, Walter Charles	*Chicago*
Still, Perrie Clayton	*DeKalb*
Vahlteich, Hans Walter	*Chicago*
Vesely, James	*Chicago*
Vondracek, Albert Frank	*Chicago*
von Steuben, Stephen	*Chicago*
Vovesny, Joseph Paul	*Chicago*
Ward, Burt Hamor	*Toulon*
Werner, LeRoy Valentine Carl	*Milwaukee, Wis.*
Wilson, Charles Harvey	*Pomona, Cal.*
Young, Eugene	*Flanigan*

SPECIAL STUDENTS

SECOND YEAR

Ayers, Leo	*Chicago*
Foreman, Daniel	*Chicago*
Havranek, Charles Joseph	*Chicago*
Kartanas, Anthony George	*Chicago*
Nyberg, Carl Walter,	*Clinton, Ia.*
Perzik, William Henry	*Chicago*
Real, Dennis Bernard	*Moline*
Weber, Paul Ernest	*Herscher*
Zalubowski, Anton	*Chicago*
Zarobsky, Frank James	*Chicago*
Zeitmann, Harry	*Chicago*

FIRST YEAR

Anderson, Otto	*Chicago*
Antonello, Joseph	*Chicago*
Baxa, Ladislav Edward	*Chicago*
Beckert, LeRoy	*Chicago*
Benedetti, Raymond	*Chicago*
Bily, Joseph Frank	*Chicago*
Bland, Claude Edward	*Chicago*
Dahlman, Vernon John	*Chicago*
Erickson, Ernest	*Pontiac*
Giddings, Howard Donald	*Chicago*
Hanna, Glenn Ensign	*Chicago*
Huhn, William	*Chicago*
Johannes, Fred Richard	*Chicago*
Kline, Raleigh William	*Chicago*
Perez, Victor	*Reyba, San Domingo*
Petronek, Charles Wesley	*Kankakee*
Plain, Homer Fielden	*Springfield*
Roman, Miguel Angel	*Santiago, San Domingo*
Schaefer, Arthur William	*Galena*
Schreyer, Michael	*Chicago*
Scogin, Joseph William	*Wapella*
Silverman, Samuel	*Chicago*
Slama, Joseph Frank	*Cicero*
Tscherney, Harry Joseph	*Chicago*
Turnell, Edward Oscar	*Chicago*
Voots, Joseph Gerhardt	*Quincy*
Wallace, Lee Edward	*Chicago*
Walz, August Anton	*Hartington, Neb.*

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INDEX

Admission ... 10
Advanced Standing ... 11
Announcement of the Session ... 7
Bacteriology, Courses in ... 17
Botany, Course in ... 13
Buildings, Description of ... 8
Calendar of the School Year ... 5
Chemistry, Courses in ... 13, 15, 16
Course, Two-year, for Ph. G ... 12
Course, Three-year, for Ph. C ... 16
Degrees ... 22
Employment, Opportunities for ... 19
Entrance Examinations ... 10
Entrance Requirements ... 10
Entrance as a Special Student ... 11
Equipment, Description of ... 8
Faculty ... 3
Fees ... 18
Graduation, Requirements for ... 11
History ... 6
Library ... 9
Materia Medica, Courses in ... 14, 15
Pharmacognosy, Courses in ... 16
Pharmacy, Courses in ... 12, 14, 17
Physiology, Course in ... 14
Prizes ... 18
Requirements for Entrance ... 10
Requirements for Graduation ... 11
Schedules of Class Hours ... 20, 21
Students, List of ... 23
Text Books ... 18

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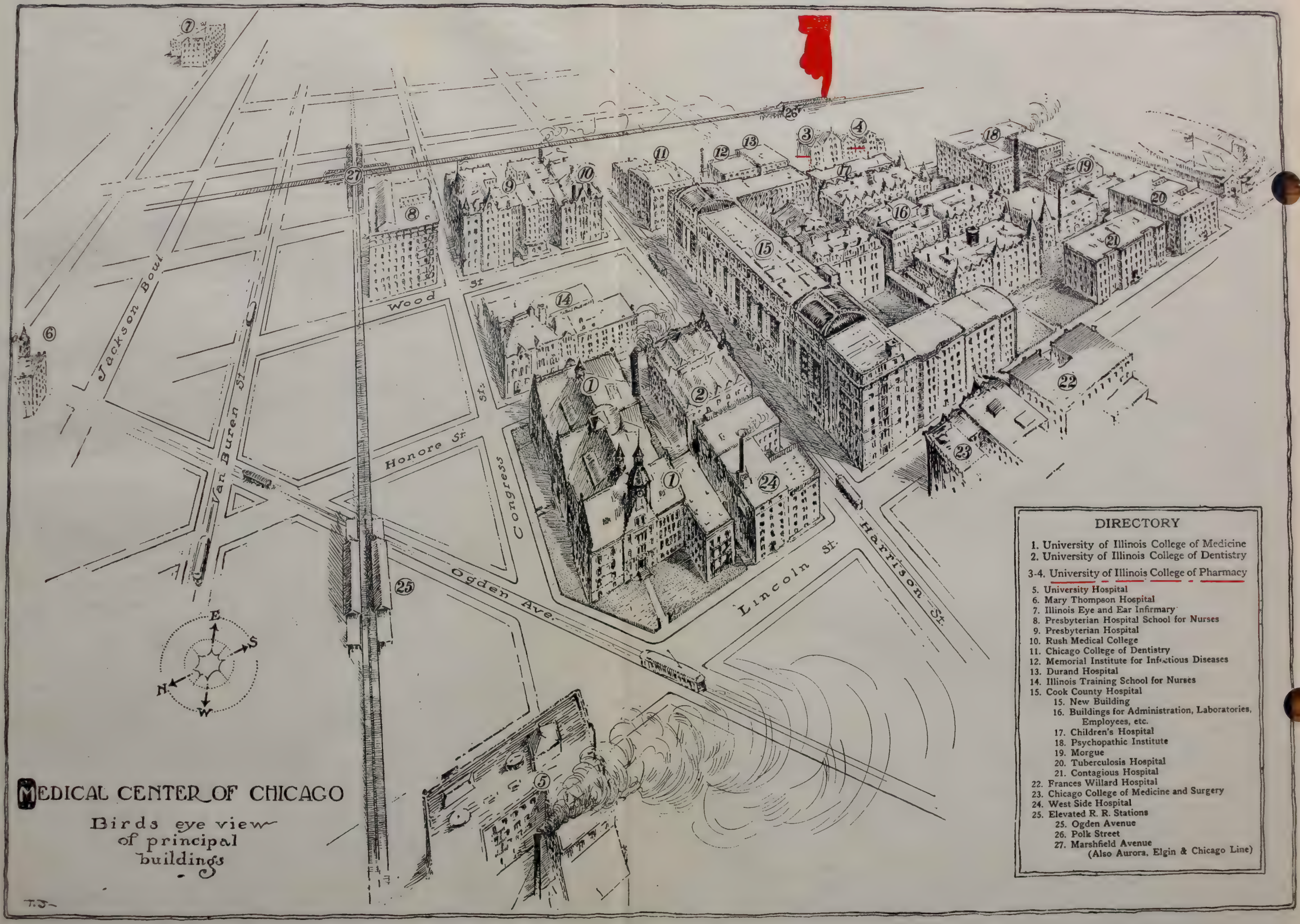
UNIVERSITY OF ILLINOIS

School of Pharmacy

1917-18

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
CHICAGO



MEDICAL CENTER OF CHICAGO

Birds eye view of principal buildings

DIRECTORY

1. University of Illinois College of Medicine
2. University of Illinois College of Dentistry

3-4. University of Illinois College of Pharmacy

5. University Hospital
6. Mary Thompson Hospital
7. Illinois Eye and Ear Infirmary
8. Presbyterian Hospital School for Nurses
9. Presbyterian Hospital
10. Rush Medical College
11. Chicago College of Dentistry
12. Memorial Institute for Infectious Diseases
13. Durand Hospital
14. Illinois Training School for Nurses
15. Cook County Hospital
    - 15. New Building
    - 16. Buildings for Administration, Laboratories, Employees, etc.
    - 17. Children's Hospital
    - 18. Psychopathic Institute
    - 19. Morgue
    - 20. Tuberculosis Hospital
    - 21. Contagious Hospital
22. Frances Willard Hospital
23. Chicago College of Medicine and Surgery
24. West Side Hospital
25. Elevated R. R. Stations
    - 25. Ogden Avenue
    - 26. Polk Street
    - 27. Marshfield Avenue (Also Aurora, Elgin & Chicago Line)

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THE STATE UNIVERSITY
Urbana
Edmund J. James, Ph. D., LL. D., President

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The College of Liberal Arts and Science (Ancient and Modern Languages and Literatures; History, Economics, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design)

The College of Commerce and Business Administration (General Business, Banking, Insurance, Accountancy, Railway Administration, Foreign Commerce; Curriculums for Commercial Teachers and Commercial and Civic Secretaries)

The College of Engineering (Architecture; Architectural, Ceramic, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Agricultural Extension; Teachers' Course; Household Science)

The College of Law (Three years' curriculum)

The School of Education

The Course in Journalism

The Courses in Chemistry and Chemical Engineering

The School of Railway Engineering and Administration

The School of Music (four years' curriculum)

The School of Library Science (two years' curriculum)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. curriculums)

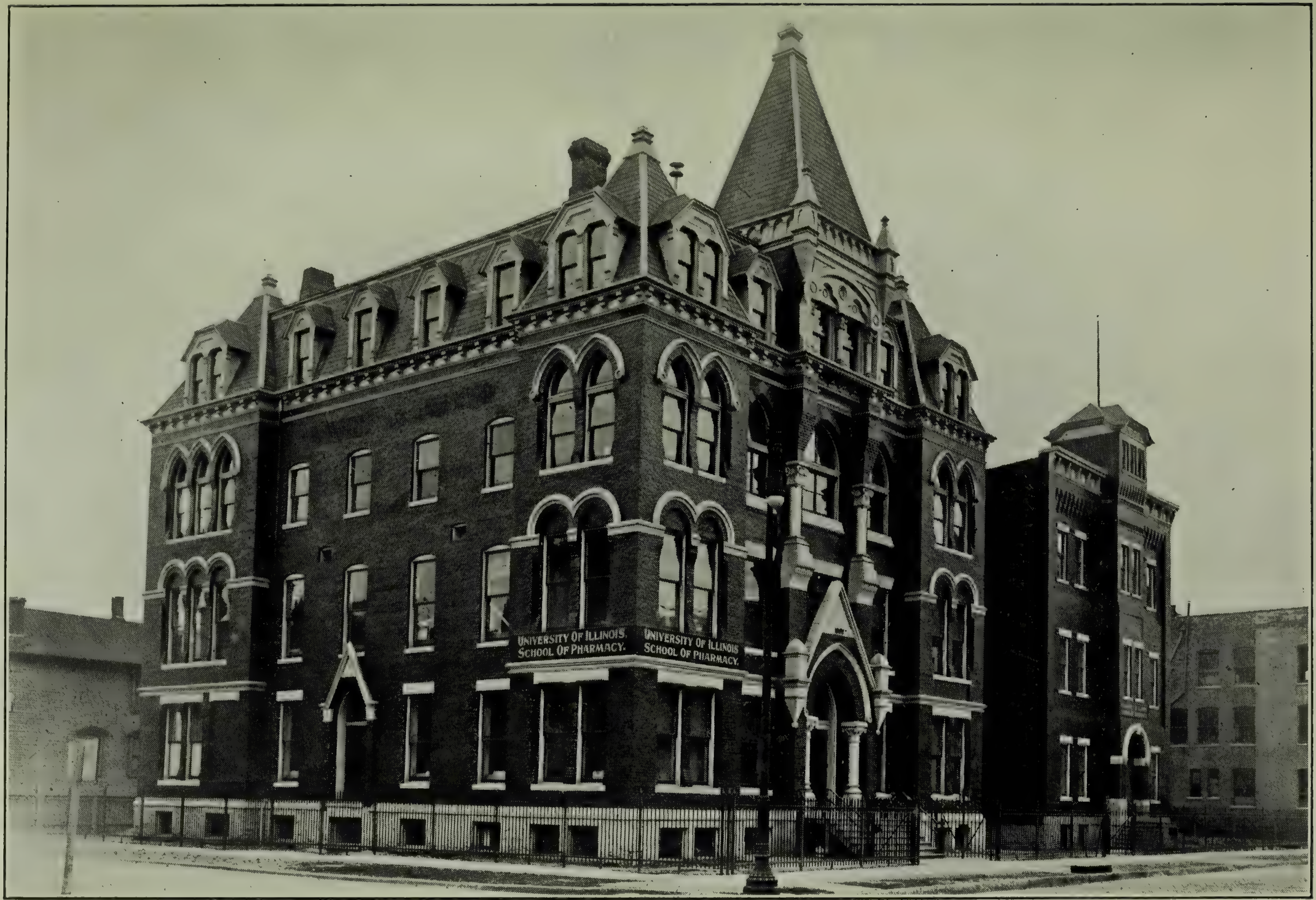
The Summer Session (eight weeks)

Experiment Stations and Scientific Bureaus: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of National History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; U. S. Bureau of Mines Experiment Station.

The library collections contain (March 1, 1917) 387,442 volumes and 93,501 pamphlets.

For catalogs and information address

THE REGISTRAR
Urbana, Illinois.



THE PHARMACY BUILDINGS

Fifty-Eighth Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY
(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

SESSION OF 1917-1918
REGISTER FOR 1916-1917

PUBLISHED BY THE UNIVERSITY
CHICAGO

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1917/18

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JOHN R. TREVETT	*Champaign*
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(Term, 1915-1921)

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(Term, 1917-1923)

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MARY E. BUSEY	*Urbana*
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Committee on the School of Pharmacy

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Advisory Board to the School of Pharmacy

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Albert Zimmermann, Peoria
A. G. C. Ackermann, Chicago
E. A. Sell, Springfield

The School of Pharmacy of the Northwestern University, Chicago, has been taken over by the University of Illinois, and Professor Maurice A. Miner, formerly professor of pharmacy in the School of Pharmacy of Northwestern University, has been appointed to the same position in this School, and will be added to its faculty beginning with the session of 1917-18.

FACULTY—1916-17

EDMUND JANES JAMES, Ph.D., LL.D., *President of the University*

WILLIAM BAKER DAY, Ph.G., Phar.M. *Acting Dean, Secretary of the Faculty; Professor of Materia Medica and Botany*

CLYDE MASON SNOW, Ph.G., *Assistant Professor of Pharmacy*

ALBERT HENRY CLARK, Ph.G., B.S., *Assistant Professor of Chemistry*

BERNARD FANTUS, M.D., *Lecturer on Physiology*

EDMUND NORRIS GATHERCOAL, Ph.G., *Instructor in Pharmacognosy*

BEN LEE EICHER, Ph.C., *Assistant in Pharmacy*

GEORGE FREDERICK VAUPELL, Ph.C., *Assistant in Chemistry*

This School holds membership in the American Conference of Pharmaceutical Faculties. The object of the conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the same must maintain certain minimum requirements for entrance and graduation. Through the influence of this conference higher standards of education have been adopted from time to time and the fact that several states by law or by Board of Pharmacy ruling recognize the standards of the conference is evidence of this influence.

CALENDAR—1917-1918

1917

September 20-22—
Examinations for admission.

October 1—Monday
Registration day.

October 2—Tuesday, 11 a. m.
First-year lectures begin.

October 3—Wednesday, 10 a. m.
Second-year and third-year lectures begin.

November 29—Thursday (holiday).
Thanksgiving Day.

December 22—Saturday, 5 p. m.
Holiday recess begins.

1918

January 7—Monday
Instruction resumed.

February 9—Saturday
First semester ends.

February 11—Monday
Second semester begins.

February 12—Tuesday
Lincoln's Birthday (holiday).

February 22—Friday
Washington's Birthday (holiday).

March 28—Thursday, 5 p. m.
Easter recess begins.

April 1—Monday, 9 a. m.
Instruction resumed.

May 30—Thursday
Decoration Day—holiday.

June 5—Wednesday
Examinations end.

June 12—Wednesday
Commencement of the University of Illinois at Urbana.

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the Eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and vegetable histology were made obligatory. A laboratory devoted entirely to prescription compounding was established.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the School, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building located at Michigan boulevard and Twelfth Street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy Streets, comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916.

ANNOUNCEMENT

The fifty-eighth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, October 2, 1917, at eleven o'clock in the morning.

The course will continue thirty-six weeks. The graduating exercises will be held with the other departments of the University on Wednesday, June 12, 1918.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care, from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In eight states a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination. As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men and women of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The New Location

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street, and Ashland Avenue surface lines all pass within a short distance of the School.

There are many boarding and rooming places in the vicinity where accommodations can be had at reasonable rates.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

THE COLLEGE BUILDINGS

The college buildings include two substantial brick structures, which are connected by a stair-tower building affording a corridor at each floor. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for quantitative analysis, the laboratory for qualitative analysis, and several private laboratories for the teachers, as well as store rooms and supply rooms.

THE LECTURE HALLS

The third and fourth floors of the College Building are largely occupied by an auditorium, capable of seating two hundred and fifty persons. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and twenty. A smaller hall on the same floor is provided with school desks for ninety persons.

THE LABORATORIES

Four general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about two hundred and fifty students working at one time. The laboratories are provided with gas, electricity, hot and cold water, distilled water, and compressed air.

THE PHARMACEUTICAL LABORATORY

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

THE LABORATORY FOR PHARMACOGNOSY

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica collection of six hundred samples of crude drugs. The equipment is new.

THE BACTERIOLOGICAL LABORATORY

The Bacteriological Laboratory is situated on the third floor of the College Building and has accommodations for ten students. The equipment includes microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided.

THE QUALITATIVE LABORATORY

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stands for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort-stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, compressed air and hydrogen sulphide are piped, are provided. The equipment is new.

THE QUANTITATIVE LABORATORY

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-four students, each stand having a complete equipment. Twelve analytical balances are provided for class use. The equipment is new.

THE LIBRARY

The Library adjoins the office on the first floor of the College Building. It contains about three thousand volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

THE MUSEUM

The Museum is situated on the third floor of the College Building. It has north light and is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

THE STUDENTS' ROOMS

A locker room for the students is provided with 200 steel lockers for coats, hats, and books. A lounging room for the men and a rest room for women students are also provided.

ADMISSION

Applicants for admission must be at least seventeen years of age and must be graduates of accredited high schools. Their high-school course must have included 15 acceptable units of high-school work, or the full educational equivalent.

Definition of "Unit"

By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall be not less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall be not less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-school students ordinarily take four subjects at a time throughout the four years of the high-school course, 15 units represent approximately four years of high-school work.

How the Entrance Requirement May Be Met

The high-school requirement may be satisfied either by certificate or by examination.

High-School Credits by Certificate

High-school credits will be accepted by certificate from the following sources:

1. From high schools and academies in the State of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

High-School Credits by Examination

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of the entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

SPECIAL STUDENTS

Registered pharmacists, assistants, or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students must be *twenty-one years of age* or over and be qualified to do the work of the School. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

The Degree of Graduate in Pharmacy

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

The Degree of Pharmaceutical Chemist

In conformity with the usual custom of pharmaceutical schools, drug-store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty-six weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—FIRST YEAR

1. *Theoretical Pharmacy.*—Pharmacy in its historical, professional, and legal relations, metrology, including the metric system and specific gravity; pharmaceutical arithmetic, including the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; drills in percentage and alligation as applied to pharmaceutical preparations; the various processes of operative pharmacy considered according to their relation to physical laws and phenomena; their applications in pharmacy presented in order and exemplified by demonstration in the use of apparatus, utensils, and devices employed in pharmaceutical practice; heat, its source and uses as involved in the processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects, and causes; related processes, with their dependent separative operations, filtration, extraction, and their modifications. Three lectures and recitations a week. First semester.

2. *Galenical Pharmacy.*—Solutions and mixtures official in the United States Pharmacopœia and National Formulary; grouped according to the methods of preparation and strengths. Reference is made to the synonyms, common uses, and doses. The preparations of foreign pharmacopœias are also considered. Three lectures and recitations a week. First half of second semester.

3. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations; their pharmaceutical and technical uses; their posology and therapeutic applications. Three lectures and recitations a week. First half of second semester.

4. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures. Several preparations illustrative of the various processes and their operations are made by each student under the supervision of the director. One laboratory period of three hours each week. Both semesters.

5. *Dispensing.*—The preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding in prescription form. One laboratory period of one hour each week. Second semester.

CHEMISTRY—FIRST YEAR

1. *Theoretical Chemistry.*—The general principles of chemistry in connection with the non-metallic elements; the nature of acids, bases, and salts from the standpoint of the modern theories of ionization, dissociation, etc. Two lectures, one recitation a week. First semester.

2. *General Chemistry.*—A study of the metals, in which the theories and principles of chemistry learned in course 1 are applied. Special attention is given to substances which are of pharmaceutical importance. Two lectures, one recitation a week. Second semester.

3. *Qualitative Analysis.*—The identification of the various inorganic acid radicals and the more common metals; the examination of about thirty unknown mixtures; also, the special qualitative tests of the United States Pharmacopœia and the examination of medicinal chemicals for identity and purity. One lecture and one laboratory period of three hours each week. Both semesters.

MATERIA MEDICA AND BOTANY—FIRST YEAR

1. *Pharmaceutical Botany.*—A general course dealing chiefly with the flowering plants. The development and functions of the plant body and its organs, the root, stem, leaves, flowers, fruit, and seed. Reference is made to the uses of these as drugs and to the cultivation of medicinal plants.

Two lectures, one recitation and one laboratory period of one hour each week. First semester.

2. *Plant Histology.*—The microscopic structure of plants; the technique of the microscope; the operations of lighting, focusing, drawing, measuring, cutting, mounting objects; the application of micro-chemical tests, staining, etc. One laboratory period of two hours each week. Both semesters.

3. *Physiology and Hygiene.*—A general course with instruction in caring for emergency cases. Two lectures and one recitation a week. First semester.

4. *Materia Medica.*—The general principles of materia medica; a classification of medicines based on their therapeutic action; incompatible drugs, posology and toxicology. Two lectures, one recitation, and one laboratory period of two hours each week. Second semester.

PHARMACY—SECOND YEAR

6. *Extractive Preparations.*—Infusions, decoctions, tinctures, fluid extracts, resins, etc; presented in progressive order and grouped according to their drug strength. Three lectures and recitations a week. First half, first semester.

7. *Mixtures of Solids.*—Preparations for internal use, powders, masses, pills, confections, troches, capsules, cachets, tablets, etc. Preparations for external use, presented in order of consistence: ointments, cerates, suppositories, and plasters; their respective therapeutic uses, and the pharmaceutical methods involved in their elaboration. Three lectures and recitations a week. Second half, first semester.

8. *Organic Substances.*—Their preparation, purification, identity, purity, and strength, pharmaceutical preparations, medicinal uses, and doses, beginning with the carbohydrates, alcohols, and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products. The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles; their pharmaceutical and medicinal properties and uses. Three lectures and recitations each week. Second semester.

9. *Pharmaceutical Laboratory.*—The preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the extractive preparations, tinctures, extracts, fluid extracts, and resins; also the manufacture of scaled and granular salts. One laboratory period of four hours each week. Both semesters.

10. *Dispensing.*—The preparation of mixtures adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates, and pills with various coatings; ointments, plasters, and suppositories. Typical prescriptions are prepared, and the methods for the prevention or modification of incompatibilities are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms, directions, posology, and the finishing of packages. One laboratory period of two hours each week. Both semesters.

CHEMISTRY—SECOND YEAR

4. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. The simple hydrocarbons and their derivatives; alcohols, ethers, aldehydes, acids, esters, and carbohydrates. The aromatic hydrocarbons and their deivatives; the synthetic remedies and the alkaloids. Two lectures, one recitation a week. Both semesters.

5. *Elementary Quantitative Analysis.*—Typical examples of gravimetric analysis as applied to the determination of the purity and strength of medicinal substances. One lecture or recitation and one laboratory period of five hours each week. First semester.

6. *Quantitative Analysis.*—Mainly volumetric processes of the United States Pharmacopœia. One lecture or recitation and one laboratory period of five hours each week. Second semester.

MATERIA MEDICA—SECOND YEAR

5. *Materia Medica.*—The vegetable drugs in botanic sequence; the animal drugs; their titles, synonyms, collection, preservation, standardization, therapeutic use, dose, and preparations. Two lectures and one recitation a week. Both semesters.

6. *Pharmacognosy.*—A study of drugs in the laboratory, following the lectures in materia medica. Typical specimens of drugs are given for recognition and description, and characteristic features are indicated. The methods employed in the detection of adulterations in powdered drugs; practise in the application of these methods to the examination of commercial drugs. One laboratory period of two hours and one written quiz a week. Both semesters.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food-and-drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-six weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practice.

Chemistry—Third Year

7. *Organic Chemistry.*—Organic methods. Qualitative detection of elements. Synthesis of typical compounds. One lecture or recitation and two laboratory periods of three hours each week. First semester.

8. *Advanced Quantitative Analysis.*—The same as Chemistry 6, except that a wider range of subjects and methods is covered. Uranalysis is also included. One lecture or recitation and two laboratory periods of four hours each week. First semester.

9. *Food Analysis.*—Alcohols, carbohydrates, oils, fats, flavors, colors, preservatives. One lecture or recitation and two laboratory periods of four hours each week. Second semester.

10. *Alkaloids.*—The alkaloidal assay methods of the United States Pharmacopœia together with a general survey of the constitution and behavior of alkaloids. One lecture or recitation and two laboratory periods of three hours each week. Second semester.

Microscopy—Third Year

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants; practice in technical methods employed in their examination; micrometry, use of the micropolariscope, application of special reagents, etc.; the microscopic examination and identification of hairs, fibers, and textiles, urinary sediments, blood, pus, tubecasts, and crystalline substances. One lecture or recitation and two laboratory periods of three hours each week. First semester.

Bacteriology—Third Year

1. *Bacteriology.*—A general course; the history of the science; the general characteristics of bacteria; their morphology, structure, and classification; their

chemical composition, vital phenomena, and chemical effects. The relation of bacteria to disease; the theories of infection and immunity; the ferments, ptomaines, toxins, and anti-toxins. The action of antiseptics, disinfectants, and bactericidal substances. The preparation of culture media and staining solutions; the methods of cleaning and sterilizing glassware and nutrient media; the effects of different temperatures on the growth of different bacteria; the methods of making plate cultures and colonies, and the technic of cover-glass slips of the basic forms of bacteria; bacteriologic methods in the examination of milk, air, and water. One lecture or recitation period of three hours each week. Second semester.

Pharmacy—Third Year

11. *Operative Pharmacy.*—The determination of physical constants. The manufacture of preparations of the United States Pharmacopeia and National Formulary and the application of their tests for purity and identity; also extra-official preparations with reference to such modern preparations as are employed in this country and abroad in various surgical specialties. One lecture or recitation and three laboratory periods of three hours each week. First semester.

12. *Manufacturing Pharmacy.*—The preparation of potent tinctures, fluid extracts, and extracts; also resins, alkaloids, and other active principles; their standardization; the application of commercial assay processes. One lecture or recitation and three-hour laboratory periods each week. First half, second semester.

13. *Manufacturing Pharmacy.*—Commercial and industrial methods for the manufacture of pills, tablets, ointments, effervescent salts, extracts, and dermatological preparations. An opportunity is afforded the student to use commercial labor-saving machinery. The manufacture and testing of organic preparations. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

GENERAL INFORMATION

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild of New York City offers a scholarship, annually, amounting to three hundred dollars, to the high school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have completed a four-year high-school course, must have had two years of practical experience in pharmacy, and must take an examination in elementary chemistry, elementary materia medica, practical pharmacy, prescription reading, and elementary business knowledge. The examinations will be held annually at the School of Pharmacy on the 25th of June. Any one desiring to compete should address the Dean.

WOMAN'S LOAN FUND

In May, 1917, the Woman's Organization of the Chicago Retail Druggists' Association gave to the University the sum of $115.00, to be used in establishing a loan fund in the School of Pharmacy. This fund is to be loaned to a deserving woman student, preferably from Illinois, who is enrolled in the School. The loan is made upon the recommendation of the Dean and is to be repaid within three years for a junior student and within two years for a senior student, dating from the ensuing thirtieth of June. A note of hand bearing five per cent interest from the time the recipient leaves school is taken for the amount.

HONORS AND PRIZES

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

The Prize Microscope.—Mr. Herman Fry, an alumnus of the School, offers a fine compound microscope as a prize to the senior student who attains the highest average in materia medica and pharmacognosy. Practical work in the laboratory as well as scholarship and attendance will be considered in awarding this prize.

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

Chemistry Prize.—Mr. Leo L. Mrazek, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in chemistry.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

Class Honors, in both the junior and the senior year, are awarded to such students as attain a general average of ninety per cent or above.

TEXT BOOKS AND WORKS OF REFERENCE

The books listed below have been selected as the best suited for the students' use in connection with the two-year course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those of which the titles are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson & Henderson's Chemistry, Clark's Analytical Chemistry, Cohen's Theoretical Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Bastin's College Botany,* Gage's Microscopical Methods, Pierce's Human Physiology, Steven's Plant Anatomy, *Day's Histology.*

PHARMACY.—*The Pharmacopœia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, *Arny's Pharmacy, The National Formulary.*

FEES AND EXPENSES

MATRICULATION.—The fee for matriculation is ten dollars; it is required of all students upon entering the School for the first time.

REGISTRATION.—The registration fee for each year is five dollars.

TUITION FEES.—The tuition fee for each year of the two-year course is ninety dollars. The tuition fee for the third year (Ph.C. course) is one hundred twenty-five dollars. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the two-year course is required to deposit ten dollars. For the third year (Ph.C. course) this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coat-room.

A DIPLOMA FEE of five dollars is required at graduation.

PAYMENT OF FEES.—The fees are payable in advance, one-half of the tuition fee at the beginning of each semester. *If the fees are not paid in full within ten days after the semester begins, an additional charge of five dollars will be made.*

REBATES OF FEES.—In case a student withdraws from the School of Pharmacy during the first ten days of instruction as scheduled, the total amount of his fees except the matriculation fee and the registration fee will be refunded. After ten days, and before the middle of the semester, a rebate of one-half the fees, except the matriculation fee and the registration fee, will be made. After the middle of the semester no rebate will be allowed. In no case will any part of the matriculation fee or the registration fee be refunded.

Board and Lodging.—The expense of board and room together is from $6 to $8 a week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the Ph. C. course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students at the opening of the session in the order in which students are registered. The process of registration includes the submission of credentials satisfying the entrance requirements and the payment of the registration fee of five dollars.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

A register of students desiring employment and of pharmacists wishing to employ students is kept at the School. Students desiring employment are invited to correspond with the School.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment ranges from six to ten dollars a week.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy, or register by reciprocity with another state. Illinois reciprocates with the state boards of thirty-one states upon the basis of registration by examination in any one of these states.

The diploma of this School is accepted in lieu of examination for registration in several states, and others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized, and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs" required by the law, for the actual time of attendance at a school of pharmacy, but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for a matriculation blank, address

W. B. Day, *Acting Dean.*

701 South Wood Street, Chicago, Ill.

SCHEDULE OF CLASSES—FIRST YEAR

FIRST SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Botany Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Botany Lecture	Botany Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Recitation
	2 to 5 p. m. Section I Chemical Laboratory	2 to 5 p. m. Section II Chemical Laboratory	2 to 5 p. m. Section II Microscopical Laboratory
	2 to 5 p. m. Section II Pharmaceutical Laboratory	2 to 4 p. m. Section I Microscopical Laboratory	4 to 5 p. m. Section II Botanical Laboratory
		4 to 5 p. m. Section I Botanical Laboratory	2 to 4 p. m. Section I Pharmaceutical Laboratory

SCHEDULE OF CLASSES—FIRST YEAR

SECOND SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Materia Medica Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Materia Medica Lecture	Materia Medica Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 5 p. m. Section II Pharmaceutical Laboratory	1 to 5 p. m. Section II Chemical Laboratory	1 to 5 p. m. Section I Pharmaceutical Laboratory
	1 to 5 p. m. Section I Chemical Laboratory	1 to 3 p. m. Section I Microscopical Laboratory	1 to 3 p. m. Section II Microscopical Laboratory
		3 to 5 p. m. Section I Pharmacognosy Laboratory	3 to 5 p. m. Section II Pharmacognosy Laboratory

SCHEDULE OF CLASSES—SECOND YEAR

HOURS	MONDAY	WEDNESDAY	FRIDAY
9 to 10 a. m.	Materia Medica Recitation	Pharmacy Recitation	Chemistry Recitation
10 to 11 a. m.	Chemistry Lecture	Chemistry Lecture	Pharmacy Lecture
11 a. m. to 12 m.	Pharmacy Lecture	Materia Medica Lecture	Materia Medica Lecture
1 to 6 p. m.	1 to 6 p. m. Chemical Laboratory	1 to 3 p. m. Section I Microscopical Laboratory	1 to 2 p. m. Pharmacognosy Written Quiz
		3 to 5 p. m. Section I Dispensing Laboratory	2 to 6 p. m. Pharmaceutical Laboratory
		1 to 3 p. m. Section II Dispensing Laboratory	
		3 to 5 p. m. Section II Microscopical Laboratory	

DEGREES—1917

DEGREE OF PHARMACEUTICAL CHEMIST

Ednah Blanche Anderson
Ernesto Vazques Benedicto, B.S.
Samuel Solman Kaplan
Harry Hlia Latsis
Leo Harold Shapiro
Irvin Miles Slepicka
Ralph Rickey Thoroman, Ph.G.

DEGREE OF GRADUATE IN PHARMACY

Oliver Toby Agdesteen
Benjamin William Altstaedt
Corydon Aephalia Babbitt
Arthur M. Bakkers
Charles Bidwell
William Bloch
Irwin Bloom
Reuben Roy Borovik
Guillermo Calderon
Carl Bernhard Christiansen
James Joseph Chochola
Charles Percival Datz
Russell Lowell Dillow
John Patrick Downey
Hattie Adela Dyniewicz
Ferdinand John Feigl
Alphonse Peter Ferring
Benjamin Goldman
Carl Francis Haffner
Grant Henry Heidbreder
Clement Jordan
Richard Marshall Kaminski
Oscar Ludvick Lundgren
William James McDonald
Walter Thomas McGinnis
Bruce Scott Marshall
James Edwin Melvin
Vincent Robert Menella
Carl Theodore Miller
Herbert Leonard Neumann
Hiram Vanderbilt Nichols
Bernice Antoinette Ostrowski
Alice Eliska Pelikan
Emil Paul Rauschert
Garnsie H. Robinson
Miguel Angel Roman
Rudolph Johannes Schobert
Lyle Albert Seibert
Dayle Albert Snyder
Edward Diedrich Steffen
Perrie Clayton Still
Omar Harwell Whittington
Charles Harvey Wilson
Vincent Andrzelczyk (Class of '16)
James Francis Bradley (Class of '16)
Anna Belle Brummall (Class of '16)
Victor Elmer Erickson (Class of '16)
Orazio Mazzei (Class of '16)
Mark Eldon Neville (Class of '15)
Domingo Poli (Class of '15)
Young Rey (Class of '15)
Walter Alanson Vanderbogart (Class of '15)
Richard Van Kempema (Class of '16)

CERTIFICATES

Josephine Marion Dyniewicz
Andrew Carl Friedley
Leonard Ralph Green
Grant Guild
Beulah Klein
John Edwin Leone
Paul Henry Pohlman
Harold Claude Prutsman
Rose J. Ruder

HONORS

SENIOR CLASS

Josephine Marion Dyniewicz, *the Alumni Medal*
Ednah Blanche Anderson, *the Andrew Scherer Prize*
Dayle Albert Snyder, *the Leo L. Mrazek Prize*
Hattie Adela Dyniewicz, *the Herman Fry Prize*
Rose J. Ruder, *A. Ph.A. Membership in Materia Medica*
Emil Paul Rauschert, *A. Ph.A. Membership in Chemistry*
Hans W. Vahlteich, *Wm. Gray Prize*
Charles Bidwell, *A. Ph.A. Membership in Pharmacy*
Alice E. Pelikan, *Honorable Mention*

JUNIOR CLASS

Harold Shindler
Pauline McClure
Wallace Formhals
Richard Grenberg
Arnim Wyle
George Wood
Homer Wherley
John Calef
Raymond Allen

LIST OF STUDENTS—1916-1917

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

Anderson, Mrs. Ednah Blanche	*Dow City, Iowa*
Benedicto, Ernesto Vazques, A.B. (Rizal University), 1909	*Manapla, P. I.*
Kaplan, Samuel Solman	*Chicago*
Latsis, Harry Hlia	*Chicago*
Shapiro, Leo Harold	*Chicago*
Slepicka, Irvin Miles	*Cicero*
Thoroman, Ralph Rickey, Ph.G., 1916	*Mt. Sterling*
Wilson, Miss Ruth	*Chicago*

COURSE FOR GRADUATES IN PHARMACY

SENIORS

Agdesteen, Oliver Toby	*Chicago*
Altstaedt, Benjamin William	*Chicago*
Babbitt, Corydon Aephalia	*Chicago*
Bakkers, Arthur M.	*Chicago*
Bakkers, Mrs. Neff Kuyper	*Chicago*
Barone, Christopher	*Chicago*
Bidwell, Charles	*Albion, Indiana*
Bloch, William	*St. Louis, Missouri*
Bloom, Irwin	*Chicago*
Borovik, Reuben Roy	*Chicago*
Calderon, Guillermo	*El Paso, Texas*
Christiansen, Carl Bernhard	*Chicago*
Chochola, James Joseph	*Chicago*
Datz, Charles Percival	*Chicago*
Dillow, Russell Lowell	*Dongola*
Downey, John Patrick	*Chicago*
Dunn, Ulysses Simpson, A. B. (Lincoln University), 1913	*Ravenna, Ohio*
Dyniewicz, Miss Josephine Marion	*Chicago*
Dyniewicz, Miss Hattie Adela	*Chicago*
Feigl, Ferdinand John	*Chicago*
Ferring, Alphonse Peter	*New Vienna, Iowa*
Friedley, Andrew Carl	*Chicago*
Goldman, Benjamin	*Chicago*
Green, Leonard Ralph	*Herrin*
Guild, Grant	*Geneseo*
Haffner, Carl Francis	*Bloomington*
Harvey, Roy Ernest	*Chicago*
Heidbreder, Grant Henry	*Quincy*
Jordan, Clement	*Wapella*
Kaminski, Richard Marshall	*Chicago*
Klein, Miss Beulah	*Downer's Grove*
Leone, John Edwin	*Chicago*
Lundgren, Oscar Ludvick	*Highland Park*

McDonald, William James	*Murphysboro*
McGinnis, Walter Thomas	*Rochelle*
Marshall, Bruce Scott	*Chicago*
Melvin, James Edwin	*Chicago*
Menella, Vincent Robert	*Chicago*
Miller, Carl Theodore	*Chicago*
Neumann, Herbert Leonard	*Aurora*
Nichols, Hiram Vanderbilt	*Chicago*
Ostrowski, Miss Bernice Antoinette	*Hammond, Indiana*
Pelikan, Mrs. Alice Eliska	*Chicago*
Person, Frank Daniel	*Chicago*
Pieper, Henry Anthony	*Jacksonville*
Pohlman, Paul Henry	*Palatine*
Porter, Miss Lillian	*Chicago*
Post, Charles Ezra	*Chicago*
Prutsman, Harold Claude	*Princeton*
Rauschert, Emil Paul	*Chicago*
Robinson, Harnsie H.	*Rockford*
Roman, Miguel Angel	*Santiago, San Domingo, W. I.*
Ruder, Mrs. Rose J.	*Chicago*
Schobert, Rudolph Johannes	*Chicago*
Seibert, Lyle Albert	*Ashley*
Simmons, Donald Fletcher	*Girard*
Snyder, Dayle Albert	*Astoria*
Steffen, Edward Diedrich	*Whitefish, Montana*
Stein, Victor	*Chicago*
Steinweg, Walter Charles	*Chicago*
Still, Perrie Clayton	*DeKalb*
Ude, Louis Edward	*Carmi*
Vahlteich, Hans Walter	*Chicago*
Vovesney, Joseph Paul	*Chicago*
Warren, Leslie Ernest	*Waukegan*
Whittington, Omar Harwell	*Waldron, Arkansas*
Wilson, Charles Harvey	*Pomona, California*

JUNIORS

Allen, Raymond Leslie	*Mt. Vernon*
Anderson, Lloyd Chester	*Manitowoc, Wisconsin*
Bagdziunas, Joseph Francis	*Chicago*
Baird, Harold Glen	*Harvard*
Biaselli, Cosmo David	*Chicago*
Bonnen, Edward George	*Gibson City*
Bower, Miss Georgiana Grace	*Chicago*
Calef, John Fred	*Norwood Park*
Carlson, Miss Ethel Marie	*Hubbard Woods*
DeMarti, Salvatore	*Buffalo, New York*
Dimond, Walter Harry	*Chicago*
Early, Harold Ivan	*Barry*
Easter, Joseph Henry	*East St. Louis*
Elliott, Victor Alfred	*Casey*

Formhals, Wallace Joseph	*Ottawa*
Frederick, Albert Charles	*Chicago Heights*
Fritschell, Arno William	*Chicago*
Grenberg, Richard Emmanuel	*Rockford*
Grosse, Arthur Gustav	*Chicago Heights*
Haeberle, Erwin John	*Broken Bow, Nebraska*
House, Leslie Allen	*DuQuoin*
Kahler, Howard Morris	*Rochelle*
Kaspar, William John	*Chicago*
Kell, Richard Marcellus	*Mobile, Alabama*
Kmiecik, Stanley	*Chicago*
Kunkel, Wayne Andrew	*Litchfield*
Landers, Chester Arthur	*Oregon*
Lenz, Charles Gustave	*Chicago*
Levy, John Arthur	*Chicago*
McClure, Miss Pauline	*Chicago*
Mayerson, Alexander Carl	*Chicago*
Menard, Wilfred Ignatius	*Chicago*
Muench, Adam Ernest	*Chicago*
Owens, Hubert Fred	*Clinton*
Perez, Victor	*Sayba, San Domingo, W I.*
Ralph, William Francis	*Odell*
Robinson, Adrian Arthur	*Rockford*
Shindler, Harold Allen	*Litchfield*
Siewers, Karl Lyons	*Chicago*
Smith, Franklin Pierce	*Rising Sun, Indiana*
Snyder, John Samuel	*Boonsboro, Maryland*
Tate, William Mack	*Pine Bluff, Arkansas*
Thompson, Raymond Lu	*DuQuoin*
Unger, Joseph August	*Rochelle*
Ward, Burt Hamor	*Toulon*
Wherley, Homer Leo	*Astoria*
White, Edward Napoleon	*Mounds*
Windmueller, Ralph William	*Chicago*
Wong, Ping Wa	*Hong Kong, China*
Wood, George Washington	*Chicago*
Wyle, Arnim Nybert	*Waverly*
Yule, Paul Watson	*Harcourt, Iowa*

SPECIAL STUDENTS

SECOND YEAR

Antonello, Joseph	*Chicago*
Huhn, William	*Chicago*
Johannes, Fred Richard	*Chicago*
Lowe, Charles Edward	*Marion, Indiana*
Petronek, Charles Wesley	*Kankakee*
Silverman, Samuel	*Chicago*
Turnell, Edward Oscar	*Chicago*

FIRST YEAR

Addie, Earl Harry	*Oak Park*
Bertsch, Raymond William	*Galena*
Cagney, John Joseph	*Chicago*
Compton, Allen Brownlow	*Mt. Vernon*
Doberty, Daniel Joseph	*Clinton, Iowa*
Fineman, Paul	*Chicago*
Flynn, William Howard	*Springfield*
Forbrich, Edward James	*Chicago*
Gendreau, Albert Earl	*Chicago*
Gordon, Maurice William	*Chicago*
Hesse, Calvin William	*Springfield*
Hlavacek, Louis	*Chicago*
Kodl, Albert James	*Chicago*
Koepsell, Willie Edward	*Mayville, Wisconsin*
Koontz, John Charles	*Streator*
Lindahl, John Harry	*Chicago*
Lyons, Owen Merle	*Cuba*
McCool, Frank Sell	*Springfield*
Olk, John Jacob	*Chicago*
Parkhurst, Ralph	*Effingham*
Reisman, Samuel	*Chicago*
Sallman, Frank	*Chicago*
Schreyer, Michael	*Chicago*
Shine, Joseph John	*Chicago*
Silberberg, Gust	*Chicago*
Smith, Gene William	*Fillmore*
Wisniewski, Thomas Al	*Chicago*
Worsham, Irl Conger	*Guthrie, Missouri*

INDEX

Admission 14
Advanced Standing 15
American Conference of Faculties 8
Announcement of the Session 11
Bacteriology, Courses in 19
Botany, Course in 17
Buildings, Description of 12
Calendar of the School Year 9
Chemistry, Courses in 17, 18, 19
Course, Two-Year, for Ph.G 16
Course, Three-Year, for Ph.C 19
Degrees, 1917 26
Employment, Opportunities for 23
Entrance Examinations 14
Entrance Requirements 14
Entrance as a Special Student 15
Equipment, Description of 12, 13
Faculty 7
Fees and Expenses 22
Graduation, Requirements for 15
History 10
Library 13
Loan Fund, Woman's 21
Materia Medica, Courses in 17, 18
Microscopy, Course in 19
Pharmacognosy, Course in 19
Pharmacy, Courses in 16, 17, 20
Physiology, Course in 17
Prizes 21
Requirements for Entrance 14
Requirements for Graduation 15
Schedules of Class Hours 24, 25
Scholarship, Fairchild 21
Students, List of 28
Trustees and Officers 6
Text Books 22
University of Illinois, Departments 1

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School of Pharmacy

1918-1919

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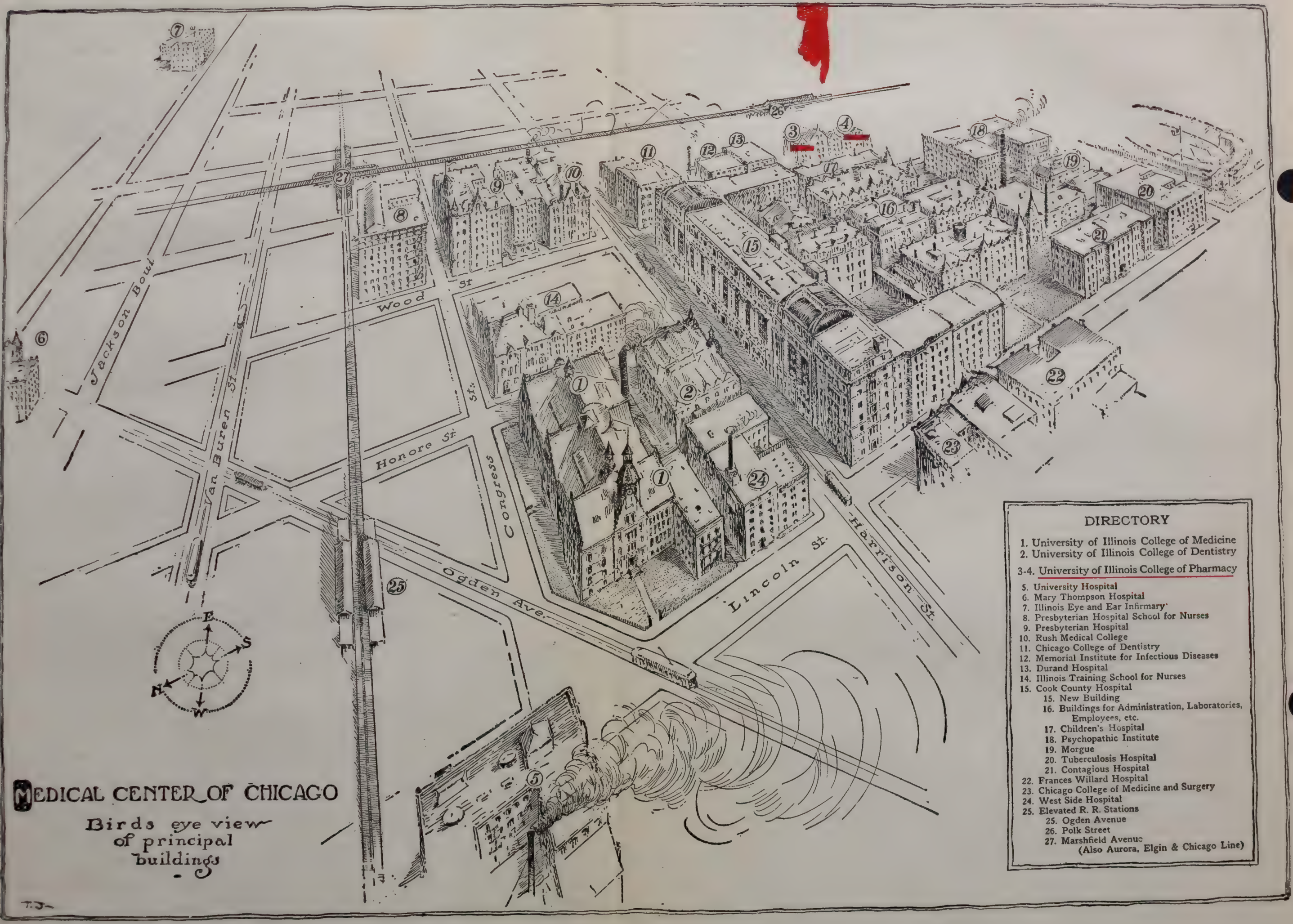
CHICAGO



MEDICAL CENTER OF CHICAGO

Birds eye view of principal buildings

DIRECTORY

1. University of Illinois College of Medicine
2. University of Illinois College of Dentistry
3-4. University of Illinois College of Pharmacy
5. University Hospital
6. Mary Thompson Hospital
7. Illinois Eye and Ear Infirmary
8. Presbyterian Hospital School for Nurses
9. Presbyterian Hospital
10. Rush Medical College
11. Chicago College of Dentistry
12. Memorial Institute for Infectious Diseases
13. Durand Hospital
14. Illinois Training School for Nurses
15. Cook County Hospital
    15. New Building
    16. Buildings for Administration, Laboratories, Employees, etc.
    17. Children's Hospital
    18. Psychopathic Institute
    19. Morgue
    20. Tuberculosis Hospital
    21. Contagious Hospital
22. Frances Willard Hospital
23. Chicago College of Medicine and Surgery
24. West Side Hospital
25. Elevated R. R. Stations
    25. Ogden Avenue
    26. Polk Street
    27. Marshfield Avenue (Also Aurora, Elgin & Chicago Line)

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1918/19

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

URBANA

EDMUND J. JAMES, Ph.D., LL.D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design)

The College of Commerce and Business Administration (General Business, Banking, Insurance, Accountancy, Railway Administration, Foreign Commerce; Courses for Commercial Teachers and Commercial and Civic Secretaries)

The College of Engineering (Architecture; Architectural, Ceramic, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Agricultural Extension; Teachers' Course; Household Science)

The College of Law (Three-year and four-year curriculums based on two years and one year of college work respectively)

The School of Education

The Curriculum in Journalism

The Curriculums in Chemistry and Chemical Engineering

The School of Railway Engineering and Administration

The School of Music (four-year curriculum)

The School of Library Science (two-year curriculum)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

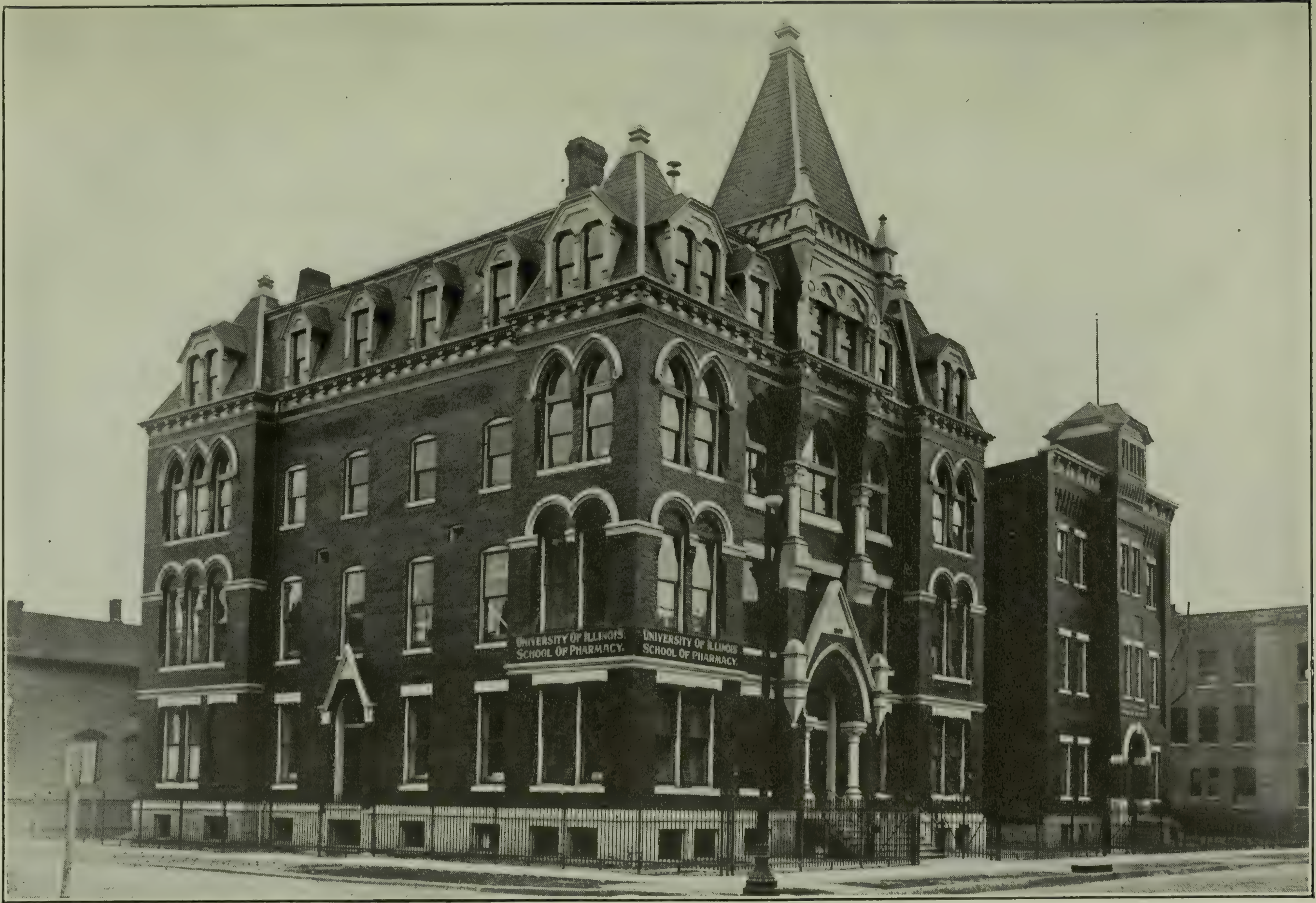
The School of Pharmacy (in Chicago; Ph.G. and Ph.C. curriculums)

The Summer Session (eight weeks)

Experiment Stations and Scientific Bureaus: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; U. S. Bureau of Mines Experiment Station.

The library collections contain (June 1, 1918) 423,063 volumes and 105,347 pamphlets. For catalogs and information address

THE REGISTRAR,
Urbana, Illinois



THE PHARMACY BUILDINGS

Fifty-Ninth Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

SESSION OF 1918-1919
REGISTER FOR 1917-1918

PUBLISHED BY THE UNIVERSITY
CHICAGO

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The President of the State Board of Agriculture

HON. JAMES E. TAGGART	*Freeport*

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(Term, 1913-1919)

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JOHN R. TREVETT	*Champaign*
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(Term, 1915-1921)

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LAURA B. EVANS	*Taylorville*
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(Term, 1917-1923)

WILLIAM L. ABBOTT	*72 West Adams Street, Chicago*
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Advisory Board to the School of Pharmacy

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Albert Zimmermann, Peoria
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[1] Appointed by Governor Lowden in 1917 to fill the unexpired term of Mrs. Ellen M. Henrotin, resigned.

FACULTY—1917-18

EDMUND JANES JAMES, Ph.D., LL.D., *President of the University*

WILLIAM BAKER DAY, Ph.G., Phar.M., *Acting Dean, Secretary of the Faculty; Professor of Materia Medica and Botany*

MAURICE ASHBEL MINER, Ph.C., Phar.M., *Professor of Pharmacy*

CLYDE MASON SNOW, Ph.G., M.A., *Assistant Professor of Pharmacy*

ALBERT HENRY CLARK, Ph.G., B.S., *Assistant Professor of Chemistry*

HOWARD E. CURL,[1] A.B., M. D., *Lecturer on Physiology*

EDMUND NORRIS GATHERCOAL, Ph.G., *Instructor in Pharmacognosy*

BEN LEE EICHER, Ph.C., *Assistant in Pharmacy*

GEORGE FREDERICK VAUPELL, Ph.C., *Assistant in Chemistry*

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[1] Resigned.

This School holds membership in the American Conference of Pharmaceutical Faculties. The object of the conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the same must maintain certain minimum requirements for entrance and graduation. Through the influence of this conference higher standards of education have been adopted from time to time and the fact that several states by law or by Board of Pharmacy ruling recognize the standards of the conference is evidence of this influence.

CALENDAR—1918-19

1918

SEPTEMBER 18-20—
Examinations for admission.

SEPTEMBER 30—Monday
Registration Day.

OCTOBER 1—Tuesday, 10 a. m.
First-year lectures begin.

OCTOBER 2—Wednesday, 10 a. m.
Second-year and third-year lectures begin.

NOVEMBER 28—Thursday (holiday).
Thanksgiving Day.

DECEMBER 21—Saturday, 5 p. m.
Holiday recess begins.

1919

JANUARY 6—Monday
Instruction resumed.

FEBRUARY 8—Saturday
First semester ends.

FEBRUARY 10—Monday
Second semester begins.

FEBRUARY 12—Wednesday
Lincoln's Birthday (holiday).

FEBRUARY 22—Saturday
Washington's birthday (holiday).

APRIL 18—Friday
Easter recess.

APRIL 21—Monday, 9 a. m.
Instruction resumed.

MAY 30—Friday
Decoration Day (holiday).

JUNE 4—Wednesday
Examinations end.

JUNE 11—Wednesday
Commencement of the University of Illinois at Urbana.

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the Eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and botany were made obligatory.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the School, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building located at Michigan boulevard and Twelfth street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy Streets, comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916.

On May 22, 1917, the School of Pharmacy of Northwestern University was taken over by the University of Illinois.

ANNOUNCEMENT

The fifty-ninth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, October 1, 1918, at ten o'clock in the morning.

The course will continue thirty-six weeks. The graduating exercises will be held with the other departments of the University on Wednesday, June 11, 1919.

This school offers to young men and young women the technical training necessary for the successful practise of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care, from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In eleven states a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men and women of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The New Location

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street, and Ashland Avenue surface lines all pass within a short distance of the School.

There are many boarding and rooming places in the vicinity where accommodations can be had at reasonable rates.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

THE COLLEGE BUILDINGS

The college buildings include two substantial brick structures, which are connected by a stair-tower building affording a corridor at each floor. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for commercial manufacturing, the laboratory for quantitative analysis, the laboratory for qualitative analysis, and several private laboratories for the teachers, as well as store rooms and supply rooms.

THE LECTURE HALLS

The third and fourth floors of the College Building are largely occupied by an auditorium, capable of seating two hundred and fifty persons. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and twenty. A smaller hall on the same floor is provided with school desks for ninety persons.

THE LABORATORIES

Four general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about two hundred and fifty students working at one time. The laboratories are provided with gas. electricity, hot and cold water, distilled water, and compressed air.

THE PHARMACEUTICAL LABORATORY

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

THE LABORATORY FOR COMMERCIAL MANUFACTURING

This laboratory, recently installed, is planned to afford practical experience to students in the handling and use of apparatus and machinery found in commercial work. Among the types are a porcelain-lined pebble mill, a pony mixer, an ointment mill, a drug mill, a pill coater, and a tablet machine. All are power driven. In addition there is a rotary sifter and mixer, a large tincture press, five and ten gallon enameled iron percolators, a drying oven, sieves, and smaller pieces used in a pharmaceutical laboratory. Electricty, gas, hot and cold water, and compressed air are provided. The outfit is installed in a large light room with a concrete floor which can readily be flushed out.

THE LABORATORY FOR PHARMACOGNOSY

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica collection of six hundred samples of crude drugs. The equipment is new.

THE BACTERIOLOGICAL LABORATORY

The Bacteriological Laboratory is situated on the third floor of the College Building and has accommodations for ten students. The equipment includes microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided.

THE QUALITATIVE LABORATORY

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stands for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, compressed air and hydrogen sulphide are piped, are provided. The equipment is new.

THE QUANTITATIVE LABORATORY

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-four students, each stand having a complete equipment. Connected with this laboratory is a smaller room provided with two electric ovens, a centrifuge, a kjeldahl apparatus, and several drying ovens. Also a balance room equipped with fifteen analytical balances for class use.

THE LIBRARY

The Library adjoins the office on the first floor of the College Building. It contains about three thousand volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

THE MUSEUM

The Museum occupies two large rooms on the third floor of the College Building. It is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

THE STUDENTS' ROOMS

A locker room for the students is provided with 200 steel lockers for coats, hats, and books. A lounging room for the men and a rest room for women students are also provided.

ADMISSION

Applicants for admission must be at least seventeen years of age and must be graduates of accredited high schools. Their high-school course must have included 15 acceptable units of high-school work, or the full educational equivalent.

DEFINITION OF "UNIT"

By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall not be less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall be not less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-school students ordinarily take four subjects at a time throughout the four years of the high-school course, 15 units represent approximately four years of high-school work.

HOW THE ENTRANCE REQUIREMENT MAY BE MET

The high-school requirement may be satisfied either by certificate or by examination.

HIGH-SCHOOL CREDITS BY CERTIFICATE

High-school credits will be accepted by certificate from the following sources.

1. From high schools and academies in the State of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

HIGH-SCHOOL CREDITS BY EXAMINATION

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of these entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

SPECIAL STUDENTS

Registered pharmacists, assistants, or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students must be *twenty-one years of age* or over and be qualified to do the work of the School. A concession is made in favor of registered apprentices who were registered in Illinois before July 1, 1917; such apprentices will be admitted as special students, even if under age. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

The Degree of Graduate in Pharmacy

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

The Degree of Pharmaceutical Chemist

In conformity with the usual custom of pharmaceutical schools, drug-store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-two hours weekly during two annual sessions of thirty-six weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practise.

PHARMACY—FIRST YEAR

1. *Theoretical Pharmacy.*—Pharmacy in its historical, professional, and legal relations, metrology, including the metric system and specific gravity; pharmaceutical arithmetic, including the conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; drills in percentage and alligation as applied to pharmaceutical preparations; the various processes of operative pharmacy considered according to their relation to physical laws and phenomena; their applications in pharmacy presented in order and exemplified by demonstration in the use of apparatus, utensils, and devices employed in pharmaceutical practise; heat, its source and uses as involved in the processes for effecting physical and chemical changes in solids and liquids; solution, its phenomena, effects and causes; related processes, with their dependent separative operations, filtration, extraction, and their modifications. Three lectures and recitations each week. First semester.

2. *Galenical Pharmacy.*—Solutions and mixtures official in the United States Pharmacopœia and National Formulary; grouped according to the methods of preparation and strengths. Reference is made to the synonyms, common uses, and doses. The preparations of foreign pharmacopœias are also considered. Three lectures and recitations each week. First half of second semester.

3. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations; their pharmaceutical and technical uses; their posology and therapeutic applications. Three lectures and recitations each week. Second half of second semester.

4. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures (Pharmacy 1). Several preparations illustrative of the various processes and their operations are made by each student under the

supervision of the director. One laboratory period of three hours each week. First semester.

5. *Pharmaceutical Laboratory.*—The manufacture of the simpler preparations of the United States Pharmacopœia and National Formulary. One laboratory period of three hours each week. Second semester.

6. *Dispensing.*—The preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding in prescription form. One laboratory period of one hour each week. Second semester.

CHEMISTRY—FIRST YEAR

1. *Theoretical Chemistry.*—The general principles of chemistry in connection with the non-metallic elements; the nature of acids, bases, and salts from the standpoint of the modern theories of ionization, dissociation, etc. Two lectures, one recitation each week. First semester.

2. *General Chemistry.*—A study of the metals, in which the theories and principles of chemistry learned in course 1 are applied. Special attention is given to substances which are of pharmaceutical importance. Two lectures, one recitation each week. Second semester.

3. *Qualitative Analysis.*—The identification of the various inorganic acid radicals and the more common metals; the examination of about thirty unknown mixtures; also, the special qualitative tests of the United States Pharmacopœia and the examination of medicinal chemicals for identity and purity. One lecture and one laboratory period of two hours each week. First semester.

4. *Qualitative Analysis.*—A continuation of Chemistry 3. One lecture and one laboratory period of three hours each week. Second semester.

MATERIA MEDICA AND BOTANY—FIRST YEAR

1. *General Botany.*—A general course dealing chiefly with the flowering plants. Two lectures, one recitation and one laboratory period of one hour each week. First semester.

2. *Plant Histology.*—The microscopic structure of plants; the technic of the microscope; the operations of lighting, focusing, drawing, measuring, cutting, mounting objects; the application of micro-chemical tests, staining, etc. One laboratory period of two hours each week. First semester.

3. *Plant Histology.*—A continuation of Botany 2. One laboratory period of three hours each week. Second semester.

4. *Physiology and Hygiene.*—A general course with instruction in caring for emergency cases. Two lectures and one recitation each week. First semester.

5. *Materia Medica.*—The general principles of materia medica; a classification of medicines based on their therapeutic action; incompatible drugs, posology and toxicology. Two lectures, one recitation, and one laboratory period of one hour each week. Second semester.

PHARMACY—SECOND YEAR

7. *Galenical Pharmacy.*—A continuation of Pharmacy 2. Infusions, decoctions, tinctures, fluid extracts, resins, etc.; presented in progressive order and

grouped according to their drug strength. Preparations for internal use, powders, masses, pills, confections, troches, capsules, cachets, tablets, etc. Preparations for external use, presented in order of consistence: ointments, cerates, suppositories, and plasters; their respective therapeutic uses, and the pharmaceutical methods involved in their elaboration. Three lectures and recitations each week. First semester.

8. *Organic Substances.*—Their preparation, purification, identity, purity, and strength, pharmaceutical preparations, medicinal uses, and doses. Three lectures and recitations each week. Second semester.

9. *Pharmaceutical Laboratory.*—The preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy. One laboratory period of four hours each week. Both semesters.

10. *Dispensing.*—The preparation of mixtures adapted to extemporaneous compounding. Typical prescriptions are prepared, and the methods for the prevention or modification of incompatibilities are considered. Drills in prescription reading, Latinity and abbreviations, foreign synonyms, directions, and posology. One laboratory period of two hours each week. Both semesters.

CHEMISTRY—SECOND YEAR

5. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. The simple hydrocarbons and their derivatives; alcohols, ethers, aldehydes, acids, esters, and carbohydrates. Two lectures and one recitation each week. First semester.

6. *Organic Chemistry.*—The aromatic hydrocarbons and their derivatives; synthetic remedies and alkaloids. Two lectures, one recitation each week. Second semester.

7. *Elementary Quantitative Analysis.*—Typical examples of gravimetric analysis as applied to the determination of the purity and strength of medicinal substances. One lecture or recitation and one laboratory period of four hours each week. First semester.

8. *Quantitative Analysis.*—Volumetric processes of the United States Pharmacopœia. Analysis of organic substances and alkaloids. One lecture or recitation and one laboratory period of five hours each week. Second semester.

MATERIA MEDICA—SECOND YEAR

6. *Materia Medica.*—The vegetable drugs in botanic sequence; the animal drugs; their titles, synonyms, collection, preservation, standardization, therapeutic use, dose, and preparations. Two lectures and one recitation each week. Both semesters.

7. *Pharmacognosy.*—A study of drugs in the laboratory, following the lectures in materia medica. Typical specimens of drugs are given for recognition and description, and characteristic features are indicated. The methods employed in the detection of adulterations in powdered drugs; practise in the application of these methods to the examination of commercial drugs. One laboratory period of two hours and one written quiz each week. Both semesters.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food-and-drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-six weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practise.

Chemistry—Third Year

9. *Organic Chemistry.*—Organic methods. Qualitative detection of elements. Synthesis of typical compounds. One lecture or recitation and two laboratory periods of three hours each week. First semester.

10. *Advanced Quantitative Analysis.*—The same as Chemistry 7, except that a wider range of subjects and methods is covered. Uranalysis is also included. One lecture or recitation and two laboratory periods of four hours each week. First semester.

11. *Food Analysis.*—Alcohols, carbohydrates, oils, fats, flavors, colors, preservatives. One lecture or recitation and two laboratory periods of four hours each week. Second semester.

12. *Alkaloids.*—The alkaloidal assay methods of the United States Pharmacopœia together with a general survey of the constitution and behavior of alkaloids. One lecture or recitation and two laboratory periods of three hours each week. Second semester.

Microscopy—Third Year

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants; practise in technical methods employed in their examination; micrometry, use of the micropolariscope, application of special reagents, etc.; the microscopic examination and identification of hairs, fibers, and textiles, urinary sediments, blood, pus, tubecasts, and crystalline substances. One lecture or recitation and two laboratory periods of three hours each week. First semester.

Bacteriology—Third Year

1. *Bacteriology.*—A general course; the history of the science; the general characteristics of bacteria; their morphology, structure, and classification; their chemical composition, vital phenomena, and chemical effects. The relation of bacteria to disease; the theories of infection and immunity; the ferments, ptomaines, toxins, and anti-toxins. The action of antiseptics, disinfectants, and bactericidal substances. The preparation of culture media and staining solutions; the methods of cleaning and sterilizing glassware and nutrient media; the effects of different temperatures on the growth of different bacteria; the methods of making plate cultures and colonies, and the technic of cover-glass slips of the basic forms of bacteria; bacteriologic methods in the examination of milk, air, and water. One lecture or recitation and three laboratory periods of three hours each week. Second semester.

PHARMACY—THIRD YEAR

11. *Operative Pharmacy.*—The determination of physical constants. The manufacture of preparations of the United States Pharmacœpia and National Formulary and the application of their tests for purity and identity; also extra-official preparations with reference to such modern preparations as are employed in this country and abroad in various surgical specialties. One lecture or recitation and three laboratory periods of three hours each week. First semester.

12. *Manufacturing Pharmacy.*—The preparation of potent tinctures, fluid extracts, and extracts; also resins, alkaloids, and other active principles; their standardization; the application of commercial assay processes. One lecture or recitation and three laboratory periods of three hours each week. First half, second semester.

13. *Manufacturing Pharmacy.*—Commercial and industrial methods for the manufacture of pills, tablets, ointments, effervescent salts, extracts, and dermatological preparations. An opportunity is afforded the student to use commercial labor-saving machinery. The manufacture and testing of organic preparations. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

GENERAL INFORMATION

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild of New York City offers a scholarship, annually, amounting to three hundred dollars, to the high-school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have completed a four-year high-school course and must have had two years of practical experience in pharmacy. Any one desiring to compete should address the Dean.

WOMAN'S LOAN FUND

In May, 1917, the Woman's Organization of the Chicago Retail Druggists' Association gave to the University the sum of $115.00, to be used in establishing a loan fund in the School of Pharmacy. This fund is to be lent to a deserving woman student, preferably from Illinois, who is enrolled in the School. The loan is made upon the recommendation of the Dean and is to be repaid within three years for a junior student and within two years for a senior student, dating from the ensuing thirtieth of June. A note of hand bearing five per cent interest from the time the recipient leaves school is taken for the amount.

HONORS AND PRIZES

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

Chemistry Prize.—Mr. Leo L. Mrazek, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in chemistry.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

Class Honors, in both the junior and the senior years are awarded to such students as attain a general average of ninety per cent or above.

TEXT BOOKS AND WORKS OF REFERENCE

The books listed below have been selected as the best suited for the students' use in connection with the two-year course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

CHEMISTRY.—Long's Analytical Chemistry, *McPherson & Henderson's Chemistry, Clark's Analytical Chemistry, Clark's Quantitative Analysis, Cohen's Theoretical Organic Chemistry,* Prescott & Johnson's Qualitative Analysis, Coblentz & Voricek's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Bastin's College Botany,* Gage's Microscopical Methods, Martin's Human Body, Steven's Plant Anatomy, *Day's Histology.*

PHARMACY.—*The Pharmacopœia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Arny's Pharmacy, *The National Formulary.*

FEES AND EXPENSES

MATRICULATION.—The fee for matriculation is ten dollars; it is required of all students on entering the School for the first time.

REGISTRATION.—The registration fee for each year is five dollars.

TUITION FEES.—The tuition fee for each year of the two-year course is ninety dollars. The tuition fee for the third year (Ph.C. course) is one hundred twenty-five dollars. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the two-year course is required to deposit ten dollars. For the third year (Ph.C. course) this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coat-room.

A DIPLOMA FEE of five dollars is required at graduation.

PAYMENT OF FEES.—The fees are payable in advance, one-half of the tuition fee at the beginning of each semester.

REBATES OF FEES.—In case a student withdraws from the School of Pharmacy during the first ten days of instruction as scheduled, the total amount of his fees except the matriculation fee and the registration fee will be refunded. After ten days, and before the middle of the semester, a rebate of one-half the fees, except the matriculation fee and the registration fee, will be made. After the middle of the semester no rebate will be allowed. In no case will any part of the matriculation fee or the registration fee be refunded.

BOARD AND LODGING.—The expense of board and room together is from $7 to $8 a week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

BOOKS.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph.G. course. For the Ph.C. course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students at the opening of the session in the order in which students are registered. The process of registration includes the submission of credentials satisfying the entrance requirements and the payment of the registration fee of five dollars.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

A register of students desiring employment and of pharmacists wishing to employ students is kept at the School. Students desiring employment are invited to correspond with the School.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment ranges from eight to twelve dollars a week.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois Board of Pharmacy, or register by reciprocity with another state. Illinois reciprocates with the state boards of forty-two states on the basis of registration by examination in any one of these states.

The diploma of this School is accepted in lieu of examination for registration in several states, and in others, including New York and Pennsylvania, where graduation prerequisite laws are in force, this School is among the schools recognized, and its diploma admits to the examination.

The amendments to the Illinois Pharmacy law in effect July 1, 1917, require that a candidate for the certificate of registered pharmacist be of the age of twenty-one years or over, of good moral character and temperate habits, a graduate from a school of pharmacy recognized by the State Department of Registration and Education, and who has had four years experience in pharmacy. Actual time of attendance at a recognized school of pharmacy, but not to exceed two years, will be allowed on the four years' experience required by law. The remainder of the experience must have been in compounding and dispensing drugs, medicines, and poisons under the supervision of a registered pharmacist in a drug store or pharmacy where the prescriptions of medical practitioners are compounded. Exemption from the graduation requirement is provided for such registered apprentices and assistant pharmacists who were registered by the Board of Pharmacy prior to July 1, 1917.

For further information or for a matriculation blank, address

W. B. DAY, *Acting Dean.*

701 South Wood St., Chicago, Ill.

SCHEDULE OF CLASSES—FIRST YEAR

FIRST SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Botany Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Botany Lecture	Botany Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Recitation
	2 to 3 p. m. Section I Chemistry Lecture	2 to 3 p. m. Section II Chemistry Lecture	2 to 4 p. m. Section II Microscopical Laboratory
	3 to 5 p. m. Section I Chemical Laboratory	3 to 5 p. m. Section II Chemical Laboratory	
	2 to 5 p. m. Section II Pharmaceutical Laboratory	2 to 4 p. m. Section I Microscopical Laboratory	4 to 5 p. m. Section II Botanical Laboratory
		4 to 5 p. m. Section I Botanical Laboratory	2 to 5 p. m. Section I Pharmaceutical Laboratory

SCHEDULE OF CLASSES—FIRST YEAR

SECOND SEMESTER

HOURS	TUESDAY	THURSDAY	SATURDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Materia Medica Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Materia Medica Lecture	Materia Medica Lecture	Pharmacy Lecture
1 to 5 p. m.	1 to 2 p. m. Section II Dispensing	1 to 2 p. m. Section II Chemistry Lecture	1 to 2 p. m. Section I Dispensing
	2 to 5 p. m. Section II Pharmaceutical Laboratory	2 to 5 p. m. Section II Chemical Laboratory	2 to 5 p. m. Section I Pharmaceutical Laboratory
	1 to 2 p. m. Section I Chemistry Lecture	1 to 4 p. m. Section I Microscopical Laboratory	1 to 4 p. m. Section II Microscopical Laboratory
	2 to 5 p. m. Section I Chemical Laboratory	4 to 5 p. m. Section I Materia Medica Laboratory	4 to 5 p. m. Section II Materia Medica Laboratory

SCHEDULE OF CLASSES—SECOND YEAR

HOURS	MONDAY	WEDNESDAY	FRIDAY
9 to 10 a. m.	Materia Medica Recitation	Pharmacy Recitation	Chemistry Recitation
10 to 11 a. m.	Chemistry Lecture	Chemistry Lecture	Pharmacy Lecture
11 a. m. to 12 m.	Pharmacy Lecture	Materia Medica Lecture	Materia Medica Lecture
1 to 6 p. m.	1 to 2 p. m. Chemistry Lecture	1 to 3 p. m. Section I Microscopical Laboratory	1 to 2 p. m. Pharmacognosy Written Quiz
	2 to 6 p. m. Chemical Laboratory	3 to 5 p. m. Section I Dispensing Laboratory	2 to 6 p. m. Pharmaceutical Laboratory
		1 to 3 p. m. Section II Dispensing Laboratory	
		3 to 5 p. m. Section II Microscopical Laboratory	

DEGREES, 1918

DEGREE OF PHARMACEUTICAL CHEMIST

George Matthew Campbell
Hattie Adela Dyniewicz
Josephine Marion Dyniewicz
Hans Walter Vahlteich

DEGREE OF GRADUATE IN PHARMACY

Neff Kuyper Bakkers
Edgar Baldwin
Christopher Barone
Frederic Alvin Bengston
Paul Bronner
Harold Ivan Early
Julius Sylvester Fahrner
Anton Harry Florian
Wallace Joseph Formhals
Karl William Frase
Richard Emmanuel Grenberg
Arthur Gustav Grosse
Ervin John Haeberle
Leslie Allen House
Alexander Carl Mayerson
Pauline McClure
Hubert Fred Owens
Frank Daniel Person
Victor Humberto Perez
William Francis Ralph
Harold Allen Shindler
William Charles Spanier
Russell Myers Stewart
Raymond Lee Thompson
Joseph August Unger
Earl Harold Unseth
George Washington Wood
Arnim Robert Wyle
Ednah Blanche Anderson (Class '17)
Andrew Carl Friedley (Class of '17)
William DuBroff (Class of '16)
Cecil McCanse (Class of '16)
Reuben August Rylander (Class '16)
Jeanette Sikucka (Class of '16)
John George Vlazny (Class of '16)
Louis Wischnia (Class of '15)

CERTIFICATES

Georgina Bower
Lewis P. Brockhoff
Ethel Marie Carlson
Walter Harry Dimond
Arno William Fritschell
Alfred Richard Johnson
Waldemar Arthur Koelbel
Wilfred Ignatius Millard

HONORS

SENIOR CLASS

Pauline McClure, The Alumni Medal
Wallace Joseph Formhals, The Andrew Scherer Prize
Harold Allen Shindler, The Leo L. Mrazek Prize
Ethel Marie Carlson, The Herman Fry Prize
Neff Kuyper Bakkers, A.Ph.A. Membership in Materia Medica
Russell Myers Stewart, A.Ph.A. Membership in Pharmacy
Alfred Richard Johnson, A.Ph.A. Membership in Chemistry
George Washington Wood, The Wm. Gray Prize
Walter Dimond, Honorable Mention

JUNIOR CLASS

Ralph Eldredge Fraser
Thomas E. Almond
Clyde M. Pate
Julius Charles Laegeler
Libbey Dedic
Leon A. Rambo

LIST OF STUDENTS—1917-1918

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

Brumfield, James Green, Ph.G. (Northwestern University), 1917	*Chicago*
Campbell, George Matthew	*Odell*
Dyniewicz, Miss Hattie Adela, Ph.G., 1917	*Chicago*
Dyniewicz, Miss Josephine Marion	*Chicago*
Olson, James B., Ph.G.	*Chicago*
(Northwestern University), 1917	*Melvina, Wisconsin*
Vahlteich, Hans Walter	*Chicago*

COURSE FOR GRADUATES IN PHARMACY

SENIORS

Bakkers, Mrs. Neff Kuyper	*Chicago*
Baldwin, Edgar	*Genoa*
Barone, Christopher	*Chicago*
Bengston, Frederic Alvin	*McPherson, Kansas*
Black, Waldo Knox	*Chicago*
Bower, Miss Georgina Grace	*Chicago*
Brockhoff, Lewis Paul	*Perham, Minnesota*
Bronner, Paul	*Chicago Heights*
Carlson, Miss Ethel Marie	*Hubbard Woods*
Dimond, Walter Harry	*Chicago*
Early, Harold Ivan	*Winter Haven, Florida*
Fahrner, Julius Sylvester	*Chicago*
Florian, Tony Henry	*Chicago*
Formhals, Wallace Joseph	*Ottawa*
Frase, Karl William	*Chicago*
Frederick, Albert Charles	*Chicago*
Fritschell, Arno William	*Chicago*
Grenberg, Richard Emmanuel	*Rockford*
Grosse, Arthur Gustav	*Chicago Heights*
Haeberle, Erwin John	*Broken Bow, Nebraska*
House, Leslie Allen	*DuQuoin*
Johnson, Alfred Richard	*Kerkhoven, Minnesota*
Karel, Louis	*Chicago*
Kimball, Holmes Amos	*Chicago*
Koelbel, Waldemar Arthur	*Chicago*
Lenz, Charles	*Chicago*
Linch, Mike LeRoy	*Weir, Mississippi*
Lindh, Carl Wilhelm Birger	*Chicago*
McClure, Miss Pauline	*Chicago*
Mayerson, Alexander Carl	*Chicago*
Menard, Wilfred Ignatius	*Chicago*
Owens, Hubert Fred	*Clinton*
Perez, Victor Humberto	*Sayba, San Domingo, West Ind.*

Person, Frank Daniel	*Chicago*
Ralph, William Francis	*Chicago*
Robertson, John Thomas	*Morrison*
Sedlack, George	*Chicago*
Shindler, Harold Allen	*Litchfield*
Sickman, Cyrenus Lee	*Monmouth*
Spanier, William Charles	*Chicago*
Stewart, Russell Myers	*Chicago*
Tate, William Mack	*Pine Bluff, Arkansas*
Thompson, Raymond Lee	*Chicago*
Unger, Joseph August	*Rochelle*
Unseth, Earl Harold	*Westby, Wisconsin*
Ward, Burt Hamor	*Toulon*
Wherley, Homer Leo	*Astoria*
Windmueller, Ralph William	*Chicago*
Wood, George Washington	*Chicago*
Wyle, Arnim Robert	*Waverly*

JUNIORS

Ahnert, Max Efregott	*Geneseo*
Almond, Thomas E.	*Aurora*
Baird, Harold Glen	*Harvard*
Bangert, Howard Wells	*Chicago*
Biaselli, Cosmo David	*Chicago*
Blanchet, Gustave Miller	*New Orleans, Louisiana*
Buerkle, Henry Adam	*DuQuoin*
Byanskas, Alexander William	*Chicago*
Carley, Donald Dudley	*Quincy*
Clapp, Charles Gardner	*Redlands, California*
Coffey, William	*Hammond, Louisiana*
Covnot, Moses Philip	*Streator*
Curran, George Edmund	*Belvidere*
Davidson, Ralph	*Oak Park*
Dedic, Miss Libbey	*Chicago*
DeMarti, Salvatore	*Buffalo, New York*
Diggs, James Harrison	*Chicago*
Edmond, Clarence Ernest	*Chicago*
Erickson, Eric John	*Chicago*
Fallon, Walter Raymond	*Chicago*
Fenn, Kenneth Newton	*Prophetstown*
Fraser, Ralph Eldridge	*Davis Junction*
Fredrickson, Arthur Christ	*Chicago*
Gilchrist, John Morgan	*Chicago*
Gillette, Baptiste	*Chicago*
Goldman, Ira	*Chicago*
Hur[illegible]a, T. Bernard	*Metropolis*
Jenson, Harry Jesse	*Chicago*
Johnson, Paul Ellsworth	*Mt. Sterling*
Jones, Harold Vernon	*Cowden*
Kartman, Nathan Sam	*Chicago*
Koehler, Walter George	*Kankakee*

Kunkel, Wayne Andrew	*Litchfield*
Laegeler, Julius Charles	*Highwood*
Lightfoot, Baxter Elijah	*Farmington*
Loomis, Lloyd Albert	*Detroit, Michigan*
Lowe, Edward, A.B. (Arkansas Baptist College), 1916	*Little Rock, Arkansas*
Lowe, James Alexander, A.B. (Arkansas Baptist College), 1917	*Augusta, Arkansas*
McCormac, Joseph Hyde	*Chicago*
McDaniel, Gerald Litton	*Taylorville*
McLaughlin, Elmer William	*Quincy*
Mahaffy, J. Raymond	*Chicago*
Martin, Warren H., B.S. (Wake Forest College), 1914	*Fletcher, Oklahoma*
Mastrofsky, Ben	*Chicago*
Milles, Leo	*Chicago*
Moyen, George Frederick William	*Chicago*
Novotny, Stanley	*Western Springs*
Oberman, Joseph Ruby	*Springfield*
Park, Albert	*Chicago*
Pate, Clyde M.	*Shelbyville*
Peetz, Arthur Weinert	*Chicago*
Quinn, William Gordon Cosmas	*Chicago*
Quinn, William Norman	*Griswold, Iowa*
Rambo, Leon A.	*LaMoille*
Rose, James Horace	*Chicago*
Sample, Leo Emerson	*Greenville*
Schumaker, Howard J.	*Highland Park*
Skelton, Maurice Bradford	*Urbana*
Walknetz, Nevin Frederick	*Huntington, Indiana*
White, Edward Napoleon	*Mounds*
Wilson, Charles Rodger	*Carbondale*

SPECIAL STUDENTS

SECOND YEAR

Baxa, Ladislav Edward	*Chicago*
Doherty, Daniel Joseph	*Clinton, Iowa*
Forbrich, Edward Joseph	*Antioch*
Lindahl, John Henry	*Chicago*
Parkhurst, Ralph	*Effingham*
Slama, Joseph Frank	*Chicago*

FIRST YEAR

Cordsiemon, Earl Henry	*Quincy*
German, Clarence Winfred	*Williamsfield*
Gouaux, Louis Phillip	*New Orleans, Louisiana*
Graft, Roy Joseph	*Chicago*
Haeseler, Mrs. Olga Estelle	*Chicago*
Haselberger, Charles Frank	*Chicago*

Hill, Leo Stanley	*Alma, Michigan*
Huber, George Russell	*Chicago*
Johnston, Ralph	*Greenburg, Pennsylvania*
Kleinhammer, Roy Phillip	*Chicago*
Kodl, Albert James	*Chicago*
LeClaire, Neree Edmond	*Chicago*
Maag, Arnim Paul	*Chicago*
Malinsky, George	*Chicago*
Olk, John Jacob	*Chicago*
Paara, William Robert	*Chicago*
Reisman, Samuel	*Chicago*
Schmitz, Arthur Edward	*Chicago*
Sharps, Max William	*Chicago*
Silberberg, Gust	*Chicago*
Simpson, George Angus	*Chicago*
Sister Mary Cajetana	*Chicago*
Sister Mary Wilhelmina	*Chicago*
White, William Henry	*Chicago*

INDEX

Admission 14
Advanced Standing 15
American Conference of Faculties 8
Announcement of the Session 11
Bacteriology, Courses in 19
Botany, Course in 17
Buildings, Description of 12
Calendar of the School Year 9
Chemistry, Courses in 17, 18, 19
Course, Two-Year, for Ph.G 16
Course, Three-Year, for Ph.C. 19
Degrees, 1918 26
Employment, Opportunities for 23
Entrance Examinations 14
Entrance Requirements 14
Entrance as a Special Student 15
Equipment, Description of 12, 13
Faculty 7
Fees and Expenses 22
Graduation, Requirements for 15
History 10
Library 13
Loan Fund, Woman's 21
Materia Medica, Courses in 17, 18
Microscopy, Course in 19
Pharmacognosy, Course in 18
Pharmacy, Courses in 16, 17, 20
Physiology, Course in 17
Prizes 21
Requirements for Entrance 14
Requirements for Graduation 15
Schedules of Class Hours 24, 25
Scholarship, Fairchild 21
Students, List of 27
Trustees and Officers 5
Text Books 22
University of Illinois, Departments 1

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THE College of Medicine of the University of Illinois announces that as a war emergency measure, it will begin on June 3, 1918, to operate a continuous session on the Quadrimester System, for the benefit of those students who are entering or are in the Enlisted Medical Reserve Corps. Under this system, the calendar year is divided into three terms of four months each, instead of four terms of three months each, as under the Trimester or Quarter System, or into two terms as under the usual Semester System.

The College terms will begin about June 1st, October 1st, and February 1st of each year. Any student may enter the College of Medicine at the beginning of any term.

For admission requirements, description of courses, fees and further information, consult College of Medicine circular, which will be mailed on request.

Address the Secretary
COLLEGE OF MEDICINE
UNIVERSITY OF ILLINOIS
Congress and Honore Streets CHICAGO, ILLINOIS

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1919/20

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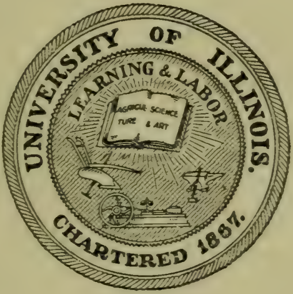
UNIVERSITY OF ILLINOIS

School of Pharmacy

1919-1920



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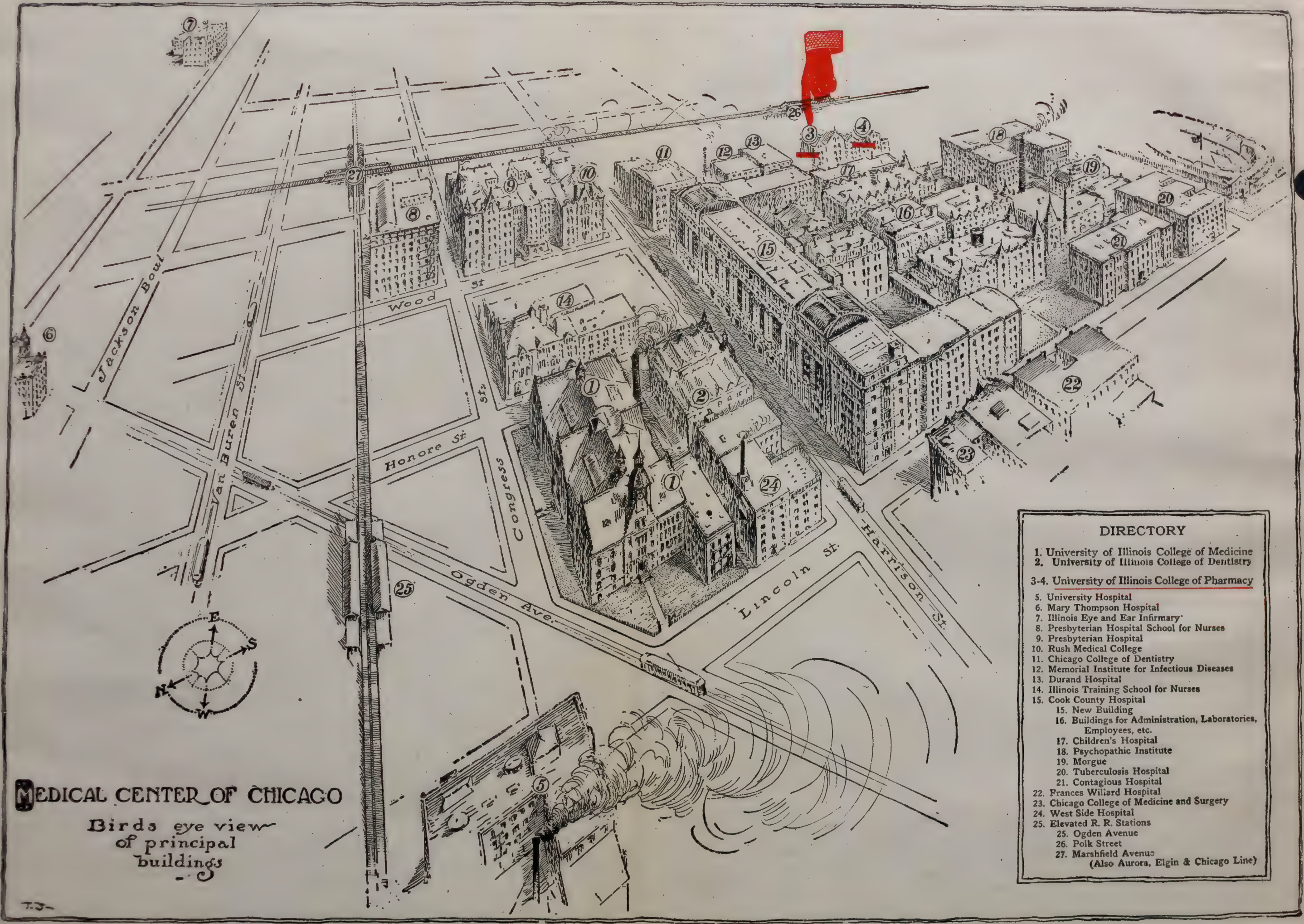

MEDICAL CENTER OF CHICAGO

Birds eye view of principal buildings

DIRECTORY

1. University of Illinois College of Medicine
2. University of Illinois College of Dentistry

3-4. University of Illinois College of Pharmacy

5. University Hospital
6. Mary Thompson Hospital
7. Illinois Eye and Ear Infirmary
8. Presbyterian Hospital School for Nurses
9. Presbyterian Hospital
10. Rush Medical College
11. Chicago College of Dentistry
12. Memorial Institute for Infectious Diseases
13. Durand Hospital
14. Illinois Training School for Nurses
15. Cook County Hospital
    15. New Building
    16. Buildings for Administration, Laboratories, Employees, etc.
    17. Children's Hospital
    18. Psychopathic Institute
    19. Morgue
    20. Tuberculosis Hospital
    21. Contagious Hospital
22. Frances Willard Hospital
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The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design)

The College of Commerce and Business Administration (General Business, Banking, Insurance, Accountancy, Railway Administration, Foreign Commerce; Courses for Commercial Teachers and Commercial and Civic Secretaries)

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The School of Education

The Curriculum in Journalism

The Curriculums in Chemistry and Chemical Engineering

The School of Railway Engineering and Administration

The School of Music (four-year curriculum)

The School of Library Science (two-year curriculum for college graduates)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. curriculums)

The Summer Session (eight weeks)

Experiment Stations and Scientific Bureaus: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; U. S. Bureau of Mines Experiment Station.

The library collections contain (March 1, 1919) 444,185 volumes and 109,528 pamphlets.

For catalogs and information address

THE REGISTRAR
Urbana, Illinois

THE PHARMACY BUILDINGS

Sixtieth Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY
(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

CHARTERED 1867.

SESSION OF 1919-1920
REGISTER FOR 1918-1919

PUBLISHED BY THE UNIVERSITY
CHICAGO

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---

*Deceased.

FACULTY—1918-1919

EDMUND JANES JAMES, Ph.D., LL.D., *President of the University*

WILLIAM BAKER DAY, Ph.G., Phar.M., *Acting Dean, Secretary of the Faculty; Professor of Materia Medica and Botany*

MAURICE ASHBEL MINER, Ph.C., Phar.M., *Professor of Pharmacy*

CLYDE MASON SNOW, Ph.G., M.A., *Assistant Professor of Pharmacy*

ALBERT HENRY CLARK, Ph.G., B.S., *Assistant Professor of Chemistry*

JAMES TOBIAS GROOT, B.S., *Lecturer on Physiology*

EDMUND NORRIS GATHERCOAL, Ph.G., *Instructor in Pharmacognosy*

HATTIE ADELA DYNIEWICZ, Ph.C., *Assistant in Pharmacy*

GEORGE FREDERICK VAUPELL, Ph.C., *Assistant in Chemistry*

EDWIN HERBERT LEWIS, Ph.D., *Instructor in War Aims**

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*For the period of the S. A. T. C. only.

This School holds membership in the American Conference of Pharmaceutical Faculties. The object of the conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the same must maintain certain minimum requirements for entrance and graduation. Through the influence of this conference higher standards of education have been adopted from time to time and the fact that several states by law or by Board of Pharmacy ruling recognize the standards of the conference is evidence of this influence.

CALENDAR—1919-20

1919

SEPTEMBER 17-19—
Examinations for admission.

SEPTEMBER 29-30—
Registration.

OCTOBER 1—Wednesday, 10 a. m.
First semester begun.

NOVEMBER 26—Wednesday, 12 m.
Thanksgiving recess begun.

DECEMBER 1—Monday, 9 a. m.
Instruction resumed.

DECEMBER 23—Tuesday, 5 p. m.
Holiday recess begun.

1920

JANUARY 5—Monday, 9 a. m.
Instruction resumed.

FEBRUARY 2-6
Semester examinations.

FEBRUARY 9—Monday, 10 a. m.
Second semester begun.

APRIL 1—Thursday, 5 p. m.
Easter recess begun.

APRIL 5—Monday, 9 a. m.
Instruction resumed.

MAY 31—Monday.
Examinations begun.

JUNE 4—Friday
Examinations ended.

JUNE 16—Wednesday
Commencement of the University of Illinois at Urbana.

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the Eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and botany were made obligatory.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the School, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building located at Michigan boulevard and Twelfth street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy streets, comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916.

On May 22, 1917, the School of Pharmacy of Northwestern University was taken over by the University of Illinois.

ANNOUNCEMENT

The sixtieth annual course of instruction in the University of Illinois School of Pharmacy will begin Wednesday, October 1, 1919, at ten o'clock in the morning.

The course will continue thirty-six weeks. The graduating exercises will be held with the other departments of the University on Wednesday, June 16, 1920.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care, from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In thirteen states a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men and women of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The New Location

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street, and Ashland Avenue surface lines all pass within a short distance of the School.

There are many boarding and rooming places in the vicinity where accommodations can be had at reasonable rates.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

The College Buildings

The college buildings include two substantial brick structures, which are connected by a stair-tower building affording a corridor at each floor. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for commercial manufacturing, the laboratory for quantitative analysis, the laboratory for qualitative analysis, and several private laboratories for the teachers, as well as store rooms and supply rooms.

The Lecture Halls

The third and fourth floors of the College building are largely occupied by an auditorium, capable of seating two hundred and fifty persons. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and twenty. A smaller hall on the same floor is provided with school desks for ninety persons.

The Laboratories

Four general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about two hundred and fifty students working at one time. The laboratories are provided with gas, electricity, hot and cold water, distilled water, and compressed air.

The Pharmaceutical Laboratory

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

The Laboratory for Commercial Manufacturing

This laboratory, recently installed, is planned to afford practical experience to students in the handling and use of apparatus and machinery found in commercial work. Among the types are a porcelain-lined pebble mill, a pony mixer, an ointment mill, a drug mill, a pill coater, and a tablet machine. All are power driven. In addition there is a vacuum pan complete with condenser and electric pump, a rotary sifter and mixer, a large tincture press, five and ten gallon enameled iron percolators, a drying oven, sieves, and smaller pieces used in a pharmaceutical laboratory. Electricity, gas, hot and cold water, and compressed air are provided. The outfit is installed in a large light room with a concrete floor which can readily be flushed out.

The Laboratory for Pharmacognosy

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica collection of six hundred samples of crude drugs. The equipment is new.

The Bacteriological Laboratory

The Bacteriological Laboratory is situated on the third floor of the College Building and has accommodations for ten students. The equipment includes microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided.

The Qualitative Laboratory

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stands for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, compressed air and hydrogen sulphide are piped, are provided. The equipment is new.

The Quantitative Laboratory

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-four students, each stand having a complete equipment. Connected with this laboratory is a smaller room provided with two electric ovens, a centrifuge, a Kjeldahl apparatus, and several drying ovens. Also a balance room equipped with fifteen analytical balances for class use.

The Library

The Library adjoins the office on the first floor of the College Building. It contains about thirty-six hundred volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Museum

The Museum occupies two large rooms on the third floor of the College Building. It is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

The Students' Rooms

A locker room for the students is provided with 200 steel lockers for coats, hats, and books. A lounging room for the men and a rest room for women students are also provided.

ADMISSION

The requirements for admission to the School of Pharmacy of the University of Illinois are as follows:

1. High-School Graduation

A candidate for admission *by certificate* must be a *graduate* of an accredited high school or other accredited school, with fifteen units[*] in acceptable subjects. By acceptable subjects are meant the subjects included in Lists A, B, and C below; not more than three units to be chosen from List C.

An applicant who has not been graduated from an accredited school must pass entrance examinations in the following subjects, amounting to 5 units:

English composition	1 unit
Algebra	1 unit
Additional subjects to be designated by the University authorities	3 units
Total	5 units

The remaining 10 units necessary to make up the 15 units required for admission may also be made in entrance examinations or may be offered by certificate from an accredited school.

2. Prescribed Subjects

The fifteen units required must include the following subjects, which are *prescribed* for admission to all departments of the University of Illinois:

List A

English	3 units
Algebra	1 unit
Plane geometry	1 unit
Physics, or chemistry, or botany, or zoology, or physiology, or physiography, with laboratory work	1 unit
Total	6 units

3. Electives

The remaining 9 units must be selected from List B and C, which follow. *Not more than 3 units may be chosen from List C.*

List B

		Units
Latin	36 to 144 weeks	1–4
Greek	36 to 108 weeks	1–3
French	36 to 144 weeks	1–4
German	36 to 144 weeks	1–4
Spanish	36 to 144 weeks	1–4
Italian	36 to 72 weeks	1–2
Norwegian	36 to 72 weeks	1–2
Swedish	36 to 72 weeks	1–2
Polish	36 to 72 weeks	1–2
English (4th unit)	36 weeks	1
Advanced algebra	18 or 36 weeks	½–1
Solid geometry	18 weeks	½
Trigonometry	18 weeks	½

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[*] By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall be not less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall be not less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-chool students ordinarily take four subjects at a time throughout the four years of the high-school course, 15 units represent approximately four years of high-school work.

History[1]	36 to 144 weeks	1–4
Civics	18 or 36 weeks	½–1
Economics and economic history	18 or 36 weeks	½–1
Commercial geography	18 or 36 weeks	½–1
Astronomy	18 weeks	½
Geology	18 or 36 weeks	½–1
Physiography	18 or 36 weeks	½–1
Physiology	18 or 36 weeks	½–1
Zoology	18 or 36 weeks	½–1
Botany	18 or 36 weeks	½–1
Physics	36 to 72 weeks	1–2
Chemistry	36 to 72 weeks	1–2

4. ADDITIONAL ELECTIVES: LIST C

The remaining 3 units may be chosen either from List B above or from List C:

LIST C[2]		*Units*
Agriculture	36 to 108 weeks	1–3
Bookkeeping	36 weeks	1
Business law	18 weeks	½
Commercial arithmetic	18 weeks	½
Domestic science	36 to 72 weeks	1–2
Drawing, art and design	18 or 36 weeks	½–1
Drawing, mechanical	18 or 36 weeks	½–1
Manual training[3]	36 to 72 weeks	1–2
Music	36 to 72 weeks	1–2
Shorthand and typewriting[4]	36 to 72 weeks	1–2

HOW THE ENTRANCE REQUIREMENT MAY BE MET

The high-school requirement may be satisfied either by certificate or by examination.

HIGH-SCHOOL CREDITS BY CERTIFICATE

High-school credits will be accepted by certificate from the following sources.

1. From high schools and academies in the State of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

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[1] Greek and Roman history, 1 unit; medieval and modern history, 1 unit; English history, ½ or 1 unit; American history, ½ or 1 unit.

[2] The subjects named in List C must be taught in accordance with specifications which are set forth in the High-School Manual. Further information may be had on application to the High-School Visitor.

[3] In giving credit for manual training the University specifies that the work is to be done by competent teachers, as determined by inspection, and that credit shall not exceed one unit for 360 forty-minute periods of work, including the necessary drawing and shop work.

[4] These two subjects must be offered together; no credit is given for either one offered separately.

HIGH-SCHOOL CREDITS BY EXAMINATION

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of these entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

SPECIAL STUDENTS

Registered pharmacists, assistants, or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candidates for a degree,* if unable to meet the foregoing educational requirements, provided that such special students are *twenty-one years of age* or over and are qualified to do the work of the School. A concession is made in favor of registered apprentices who were registered in Illinois before July 1, 1917; such apprentices will be admitted as special students, even if under age. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

THE DEGREE OF GRADUATE IN PHARMACY

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience, will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

THE DEGREE OF PHARMACEUTICAL CHEMIST

In conformity with the usual custom of pharmaceutical schools, drug-store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of first-year students on three days each week; second year students on four or five days. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practise.

PHARMACY—FIRST YEAR

1. *Theoretical Pharmacy.*—Pharmacy in its historical, professional, and legal relations, metrology, and specific gravity; pharmaceutical arithmetic; conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; drills in percentage and alligation as applied to pharmaceutical preparations; processes of operative pharmacy; use of apparatus, utensils, and devices employed in pharmaceutical practice; heat, its source and uses; solution, its phenomena, effects and causes; filtration, extraction, and their modifications. Three lectures and recitations each week. First semester.

2. *Galenical Pharmacy.*—Solutions and mixtures official in the United States Pharmacopœia and National Formulary; methods of preparation and strengths; synonyms, common uses, and doses. Three lectures and recitations each week. First half, second semester.

3. *Pharmacy of the Inorganic Substances.*—The elements, inorganic compounds and preparations; pharmaceutical and technical uses; posology and therapeutic applications. Three lectures and recitations each week. Second half, second semester.

4. *Pharmaceutical Laboratory.*—Preparations illustrative of the various processes and operations outlined in Pharmacy 1. One laboratory period of three hours each week. First semester.

5. *Pharmaceutical Laboratory.*—Manufacture of the simpler preparations of the United States Pharmacopœia and National Formulary. One laboratory period of three hours each week. Second semester.

6. *Dispensing.*—Preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding in prescription form. One laboratory period of one hour each week. Second semester.

CHEMISTRY—FIRST YEAR

1. *Theoretical Chemistry.*—General principles of chemistry in connection with the non-metallic elements; nature of acids, bases, and salts from the standpoint of the modern theories of ionization and dissociation. Two lectures, one recitation each week. First semester.

2. *General Chemistry.*—A study of the metals, in which the theories and principles of chemistry learned in course 1 are applied. Two lectures, one recitation each week. Second semester.

3. *Qualitative Analysis.*—Identification of the various inorganic acid radicals and the more common metals; the examination of about thirty unknown mixtures; the special qualitative tests of the United States Pharmacopœia; examination of medicinal chemicals for identity and purity. One lecture and one laboratory period of two hours each week. First semester.

4. *Qualitative Analysis.*—A continuation of Chemistry 3. One lecture and one laboratory period of three hours each week. Second semester.

MATERIA MEDICA AND BOTANY—FIRST YEAR

1. *General Botany.*—A general course dealing chiefly with the flowering plants. Two lectures, one recitation and one laboratory period of one hour each week. First semester.

2. *Plant Histology.*—The microscopic structure of plants; the technic of the microscope; the operations of lighting, focusing, drawing, measuring, cutting, mounting objects; the application of micro-chemical tests, staining, etc. One laboratory period of two hours each week. First semester.

3. *Plant Histology.*—A continuation of Botany 2. One laboratory period of three hours each week. Second semester.

4. *Physiology and Hygiene.*—A general course with instruction in caring for emergency cases. Two lectures and one recitation each week. First semester.

5. *Materia Medica.*—General principles of materia medica; classification of medicines based on therapeutic action; incompatible drugs, posology and toxicology. Two lectures, one recitation, and one laboratory period of one hour each week. Second semester.

PHARMACY—SECOND YEAR

7. *Galenical Pharmacy.*—A continuation of Pharmacy 2. Infusions, decoctions, tinctures, fluid extracts and resins. Preparations for internal use: powders, masses, pills, confections, troches, capsules, cachets, and tablets. Preparations for external use: ointments, cerates, suppositories, and plasters. Three lectures and recitations each week. First semester.

8. *Organic Substances.*—Preparation, purification, identity, purity, and strength, pharmaceutical preparations, medicinal uses, and doses. Three lectures and recitations each week. Second semester.

9. *Pharmaceutical Laboratory.*—Preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy. One laboratory period of four hours each week. Both semesters.

10. *Dispensing.*—Preparation of mixtures adapted to extemporaneous compounding. Typical prescriptions, methods for the prevention or modification of incompatibilities. Drills in prescription reading, Latinity and abbreviations, foreign synonyms, directions, and posology. One lecture or recitation and one laboratory period of two hours each week. Both semesters.

CHEMISTRY—SECOND YEAR

5. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. Simple hydrocarbons and their derivatives; alcohols, ethers, aldehydes, acids, esters, and carbohydrates. Two lectures and one recitation each week. First semester.

6. *Organic Chemistry.*—Aromatic hydrocarbons and their derivatives; synthetic remedies and alkaloids. Two lectures, one recitation each week. Second semester.

7. *Elementary Quantitative Analysis.*—Typical examples of gravimetric analysis as applied to the determination of the purity and strength of medicinal substances. Two lectures or recitations and two laboratory periods of three hours each week. First semester.

8. *Quantitative Analysis.*—Volumetric processes of the United States Pharmacopœia. Analysis of organic substances and alkaloids. Two lectures or recitations and two laboratory periods of three hours each week. Second semester.

MATERIA MEDICA—SECOND YEAR

6. *Materia Medica.*—Vegetable drugs in botanic sequence; animal drugs; titles, synonyms, collection, preservation, standardization, therapeutic use, dose, and preparations. Two lectures and one recitation each week. Both semesters.

7. *Pharmacognosy.*—A laboratory study, following materia medica 6. Recognition, description, and characteristic features. Methods employed in detection of adulterations in powdered drugs. One laboratory period of three hours and one written quiz each week. First semester and first half, second semester.

8. *Bacteriology.*—Characteristics of bacteria; morphology, structure, and classification; chemical composition, vital phenomena, and chemical effects. Relation of bacteria to disease; theories of infection and immunity; ferments, ptomaines, toxins and anti-toxins. Action of antiseptics, disinfectants, and bactericidal substances. Preparation of culture media and staining solutions; methods of cleaning and sterilizing glassware; methods of making plate cultures and colonies; technic of cover-glass slips. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-six weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practise.

CHEMISTRY—THIRD YEAR

9. *Organic Chemistry.*—Organic methods. Qualitative detection of elements. Synthesis of typical compounds. One lecture or recitation and two laboratory periods of three hours each week. First semester.

10. *Advanced Quantitative Analysis.*—A continuation of Chemistry 7. Uranaylsis is included. One lecture or recitation and two laboratory periods three hours each week. First semester.

11. *Food Analysis.*—Alcohols, carbohydrates, oils, fats, flavors, colors, preservatives. One lecture or recitation and two laboratory periods of four hours each week. Second semester.

12. *Alkaloids.*—Alkaloidal assay methods of the United States Pharmacopœia together with a general survey of the constitution and behavior of alkaloids. One lecture or recitation and two laboratory periods of three hours each week. Second semester.

MICROSCOPY—THIRD YEAR

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants; practise in technical methods employed in their examination; micrometry, use of the micropolariscope, application of special reagents, etc.; the microscopic examination and identification of hairs, fibers, and textiles, urinary sediments, blood, pus, tubecasts, and crystalline substances. One lecture or recitation and two laboratory periods of three hours each week. First semester.

BACTERIOLOGY—THIRD YEAR

1. *Bacteriology.*—A course in sanitary bacteriology, and the mycology and bacteriology of foods and drugs. Causal relation of microorganisms to disease; methods of determining the bacteria of milk and water; valuation of disinfectants; the methods of sterilization and diagnosis by means of bacterial cultures. Two hours of lectures and recitations, seven hours of laboratory each week. Second half, second semester.

PHARMACY—THIRD YEAR

11. *Operative Pharmacy.*—Determination of physical constants. Manufacture of preparations of the United States Pharmacopœia and National Formulary; application of tests for purity and identity; extra-official preparations employed in this country and abroad. One lecture or recitation and three laboratory periods of three hours each week. First semester.

12. *Manufacturing Pharmacy.*—Preparation of potent tinctures, fluidextracts, resins, alkaloids, and other active principles; application of commercial assay processes. One lecture or recitation and three laboratory periods of three hours each week. First half, second semester.

13. *Manufacturing Pharmacy.*—Commercial and industrial methods for the manufacture of pills, tablets, ointments, effervescent salts, extracts, and dermatological preparations. An opportunity is afforded the student to use commercial labor-saving machinery. Manufacture and testing of organic preparations. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

GENERAL INFORMATION

COUNTY SCHOLARSHIPS

A law passed by the General Assembly of the State of Illinois at the session of 1905 and embodied in the General School Law of 1909 provides that one scholarship may be awarded annually to each county of the State. The holder thereof must be at least sixteen years of age, and a resident of the county to which he is accredited. No student who has attended the University of Illinois is eligible for appointment to a county scholarship. The holder of a county scholarship who registers in the School of Pharmacy is relieved of payment of the matriculation, registration, and tuition fees, but must make the laboratory deposits ($10.00 for a year for the first two years, and $15 for the third year) and pay the diploma fee of $5.00 at graduation.

Competitive examinations for these scholarships are held under the direction of the President of the University, and on such branches of study as the President may select, on the first Saturday in June of each year, at the county court house in each county by the County Superintendent of Schools. Questions for the examinations are furnished in advance to the County Superintendents.

The successful candidates in the examinations must then meet in full, either by certificate from an accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class, and must register the following September.

In case the scholarship in any county is not claimed by a resident of that county, the President of the University may fill the same by assigning to that county from some other county the student found to possess the next highest qualifications.

A student holding a scholarship who makes it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray expenses while in attendance, may, in the discretion of the President, be granted such leave of absence, and may be allowed an extension of his scholarship for not more than two years (making not more than six years in all from the beginning of the scholarship. Such extension will not be granted unless the student has been in attendance at the University for at least one full semester, nor unless the student's average grade during the period of his attendance has been at least 75, exclusive of grades in military science and physical education.

GENERAL ASSEMBLY SCHOLARSHIPS

The same act by which the county scholarships described above were established also provides that each member of the General Assembly may nominate annually one eligible person from his district for a scholarship in the University, granting the same privileges as the county scholarships.

A member of the General Assembly who wishes to nominate a candidate for a scholarship should file the name and address of his nominee as early in the spring as practicable and not later than June 1, with the President of the University.

The nominee, if a graduate of a school accredited by the University, is awarded the scholarship without examination and is admitted to the University on the same conditions as to educational qualifications as are graduates of such accredited high schools not so appointed to scholarships. If any such candidate is not a graduate of high school accredited by the University, he must present himself for examination under the County Superintendent in accordance with the rules established for competitors for the county scholarships. In this case the nominee must further (1) meet in full, either by certificate from accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class; and (2) must register in the University the following September.

A General Assembly scholarship may be extended under the same conditions as a county scholarship.

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild of New York City offers a scholarship, annually, amounting to three hundred dollars, to high-school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have completed a four-year high-school course and must have had two years of practical experience in pharmacy. Any one desiring to compete should address the Dean of the School of Pharmacy.

WOMAN'S LOAN FUND

In May, 1917, the Woman's Organization of the Chicago Retail Druggists' Association gave to the University the sum of $115.00, to be used in establishing a loan fund in the School of Pharmacy. This fund is to be lent to a deserving woman student, preferably from Illinois, who is enrolled in the School. The loan is made upon the recommendation of the Dean and is to be repaid within three years for a junior student and within two years for a senior student, dating from the ensuing thirtieth of June. A note of hand bearing five per cent interest from the time the recipient leaves school is taken for the amount.

HONORS AND PRIZES

PHARMACY PRIZE.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

CHEMISTRY PRIZE.—Mr. Leo L. Mrazek, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in chemistry.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

CLASS HONORS, in both the junior and the senior years are awarded to such students as attain a general average of ninety per cent or above.

FEES AND EXPENSES

Matriculation.—The fee for matriculation is ten dollars; it is required of all students on entering the School for the first time.

Registration.—The registration fee for each year is five dollars.

Tuition Fees.—The tuition fee for each year of the two-year course is ninety dollars. The tuition fee for the third year (Ph.C. course) is one hundred twenty-five dollars. The tuition fee covers all drugs, chemicals, and other materials consumed by the student in the laboratories.

Larobatory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the School. To cover breakage or damage to such apparatus, as well as needless or wilful damage to fixtures or building, each student in the two-year course is required to deposit ten dollars. For the third year (Ph.C. course) this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing, or not returnable, together with a class charge for such apparatus as is used by the class in common; also a locker fee of one dollar if the student uses a locker in the coat-room.

A Diploma Fee of five dollars is required at graduation.

Payment of Fees.—The fees are payable in advance, one-half of the tuition fee at the beginning of each semester.

Rebates of Fees.—In case a student withdraws from the School of Pharmacy during the first ten days of instruction as scheduled, the total amount of his fees except the matriculation fee and the registration fee will be refunded. After ten days, and before the middle of the semester, a rebate of one-half the fees, except the matriculation fee and the registration fee, will be made. After the middle of the semester no rebate will be allowed. In no case will any part of the matriculation fee or the registration fee be refunded.

Board and Lodging.—The expense of board and room together is from $7 to $8 a week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Y. M. C. A. secretary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

Books.—The expense of books is moderate. About thirty-five dollars will purchase all the books required for the Ph.G. course. For the Ph.C. course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students at the opening of the session in the order in which students are registered. The process of registration includes the submission of credentials satisfying the entrance requirements and the payment of the registration fee of five dollars.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses.

A register of students desiring employment and of pharmacists wishing to employ students is kept at the School. Students desiring employment are invited to correspond with the School.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

The compensation for such employment ranges from eight to twelve dollars a week.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois State Department of Education and Registration, or register by reciprocity with another state. Illinois reciprocates with forty-three states on the basis of presentation of a diploma from a recognized school of pharmacy and registration by examination in any one of these states.

The diploma of this School is accepted in all states where graduation prerequisite laws are in force, as admitting to the licensing examination.

The amendments to the Illinois Pharmacy law in effect July 1, 1917, require that a candidate for the certificate of registered pharmacist be of the age of twenty-one years or over, of good moral character and temperate habits, a graduate from a school of pharmacy recognized by the State Department of Registration and Education, and who has had four years' experience in pharmacy. Actual time of attendance at a recognized school of pharmacy, but not to exceed two years, will be allowed on the four years' experience required by law. The remainder of the experience must have been in compounding and dispensing drugs, medicines, and poisons under the supervision of a registered pharmacist in a drug store or pharmacy where the prescriptions of medical practitioners are compounded. Exemption from the graduation requirement is provided for such registered apprentices and assistant pharmacists who were registered by the Board of Pharmacy prior to July 1, 1917.

For further information or for a matriculation blank, address.

W. B. Day, *Acting Dean.*

701 South Wood St., Chicago, Ill.

SCHEDULE OF CLASSES—FIRST YEAR
FIRST SEMESTER

HOURS	MONDAY	WEDNESDAY	FRIDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Botany Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Botany Lecture	Botany Lecture	Pharmacy Lecture
1 to 2 p. m.	Physiology Lecture	Physiology Lecture	Physiology Recitation
2 to 5 p. m.	(Section 1) Chemical Laboratory	(Section 2) Chemical Laboratory	(Section 2) Microscopical Laboratory
2 to 5 p. m.	(Section 2) Pharmaceutical Laboratory	(Section 1) Microscopical Laboratory	(Section 1) Pharmaceutical Laboratory

SCHEDULE OF CLASSES—SECOND YEAR
FIRST SEMESTER

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 to 10 a. m. Chemistry Lecture	9 a. m. to 12 m. Pharmacognosy Laboratory	9 to 10 a. m. Pharmacy Recitation	10 to 11 a. m. Pharmacognosy Written Quiz
10 to 11 a. m. Pharmacy Lecture	1 to 2 p. m. Pharmacy Lecture	10 to 11 a. m. Chemistry Lecture	11 a. m. to 12 m. Materia Medica Recitation
11 a. m. to 12 m. Materia Medica Lecture	2 to 5 p. m. Pharmacy Laboratory	11 a. m. to 12 m. Materia Medica Lecture	1 to 2 p. m. Chemistry Recitation
1 to 4 p. m. Dispensing Laboratory		1 to 5 p. m. Chemistry Laboratory	2 to 5 p. m. Chemistry Laboratory

THIRD YEAR—(Ph.C. Course)
FIRST SEMESTER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Pharmacy	9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Microscopy	9 a. m. to 12 m. Pharmacy
1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Pharmacy

DEGREES, 1919

DEGREE OF PHARMACEUTICAL CHEMIST

Benjamin W. Alsteadt, Ph.G
Lewis Paul Brockhoff
Karl William Frase, Ph.G.
Arno William Fritschel

DEGREE OF GRADUATE IN PHARMACY

Harold Glen Baird
Howard Wells Bangert
J. Bernard Humma
Paul Ellsworth Johnson
Andrew Wayne Kunkel
Julius C. Laegeler
Ben Mastrofsky
Albert Louis Park
Maurice Bradford Skelton
Waldemar A. Koelbel (Class of '18)
Leonard Ralph Green (Class of '17)
Alan Wallace Jacks (Class of '16)

CERTIFICATES

Thomas Eugene Almond
Libbey Dedic
James Harrison Diggs
Victor Alfred Elliott
Ralph Eldridge Fraser
Ira Goldman
Harold Vernon Jones
Nathan Sam Kartman

HONORS

SENIOR CLASS

Harold Vernon Jones, The Andrew Scherer Prize
Ralph Eldridge Fraser, The Leo L. Mrazek Prize
Howard W. Bangert, A. Ph. A. Membership in Dispensing
Libbey Dedic, A. Ph. A. Membership in Chemistry
J. Bernard Humma, A. Ph. A. Membership in Pharmacy
Julius Laegeler, A. Ph. A. Membership in Materia Medica

JUNIOR CLASS

Marietta Carothers
Virgil Connolley
Sidney Schmidt
Ralph Terry
Baxter Lightfoot

LIST OF STUDENTS—1918-1919

COURSE FOR PHARMACEUTICAL CHEMIST

SENIORS

Altsteadt, Benjamin, Ph.G., 1917	*Chicago*
Bodinus, Edmund, Ph.G. (Marquette University) 1917	*Milwaukee, Wisconsin*
Brockhoff, Lewis Paul	*Perham, Minnesota*
Frase, Karl William, Ph.G., 1918	*Chicago*
Fritschel, Arno William	*Chicago*
Grosse, Arthur Gustav, Ph.G., 1918	*Chicago Heights*

COURSE FOR GRADUATE IN PHARMACY

SENIORS

Almond, Thomas E.	*Aurora*
Baird, Harold Glen	*Harvard*
Bane, Robert Lyle	*Kansas*
Bangert, Howard Wells	*Chicago*
Dedic, Libbey	*Chicago*
Diggs, James Harrison	*Chicago*
Elliott, Victor	*Casey*
Fraser, Ralph Eldridge	*Davis Junction*
Goldman, Ira	*Chicago*
Humma, James Bernard	*Metropolis*
Jones, Harold Vernon	*Cowden*
Johnson, Paul Ellsworth	*Mt. Sterling*
Kartman, Nathan Sam	*Chicago*
Kunkel, Wayne Andrew	*Litchfield*
Laegeler, Julius Charles	*Highwood*
McDaniel, Gerald Litton	*Taylorville*
Mastrofsky, Ben	*Chicago*
Milles, Leo	*Chicago*
Moyen, George Frederick	*Chicago*
Park, Albert	*Chicago*
Skelton, Maurice Bradford	*Urbana*
Wilson, Charles Rodger	*Carbondale*

JUNIORS

Anderson, David Rangnald	*Chicago*
Bakkers, Peggie Stilwell	*Chicago*
Battershall, Lila Doolittle	*Waukegan*
Black, Thomas Wendell	*Paris*
Bleiweiss, Sydney	*Chicago*
Boe, Russell Alfred	*Chicago*
Boylan, Harry Francis	*Bloomington*
Brown, W. Edwin	*Quincy*
Byanskas, Alexander	*Chicago*
Cain, Marion Wilbur	*Virden*
Carothers, Marietta Lucille	*Ansley, Nebraska*
Carpenter, Frank Justin	*Quincy*
Cate, Rollin L.	*Streator*
Cooke, John Benjamin	*Goodland, Indiana*
Connolley, Virgil George	*Mt. Pulaski*
Cooper, Paul Francis	*Astoria*
Corson, Leonidas M.	*Genoa*
Dartt, Matthew Marvin	*Carmi*
Dorszewski, Louis	*Chicago*
Eisenberg, Ira Isadore	*Chicago*
Feuerbacher, Clarence	*Lincoln*
Felger, Carl Gustave	*Chicago*
Foster, Dennison D.	*Granite City*

Goldstein, Hilda	*Chicago*
Graham, Clarence Henry	*Carlinville*
Grosse, Friedrich W.	*Chicago Heights*
Guinter, Seward Haise	*Chicago*
Harris, Warren Frank	*Chicago*
Hauber, Josephine Cecelia	*Chicago*
Higgins, Edward Charles	*Quincy*
Hill, Leo	*Alma, Michigan*
Hlinka, Germaine Gladys	*Cicero*
Holston, Clarence E.	*Nashville*
Hough, Gordon Campbell	*Mazon*
Hultgren, Martin Edward	*Cambridge*
Humphrey, Allan	*Vandalia*
Jenkins, Harlan Leo	*Pontiac*
Jensen, Harry Jesse	*Chicago*
Jones, Adelphus Arbuckle	*Burlington, Iowa*
Kaeuffl, Ludwig Walther	*Chicago*
Kelch, Henry C.	*Decatur*
Kuchinski, Isabelle Genevieve	*Gary, Indiana*
Langerman, Alexander	*Chicago*
Levy, Benjamin	*Chicago*
Lightfoot, Baxter Elijah	*Farmington*
Lowe, Edward	*Little Rock, Ark.*
Lumpp, Raymond Joseph	*Chicago*
Madera, Jaroslav Robert	*Chicago*
Maloney, Harry	*Livingston, Montana*
McBride, Stanley Edward	*Elgin*
McGrath, John Oliver	*Toluca*
Merrill, Fayette Oscar	*Des Moines, Iowa*
Million, Floyd Hezekiah	*Rockport, Missouri*
Morris, Charles Loran	*Johnston City*
Pahl, Hans C.	*Downers Grove*
Petersen, E. Silas	*Joliet*
*Purdum, Roy Wayne	*Macomb*
Quick, Noble Jennings	*St. Francisville*
Rudie, Grant	*Westby, Wisconsin*
Schmidt, Sidney	*Chicago*
Schumacher, Howard J.	*Highland Park*
Schur, Irving Carl	*Kenilworth*
Sides, William	*Moline*
Sisson, George Harper	*Belvidere*
Terry, Ralph	*Aurora*
Thompson, Charles Samuel	*DuQuoin*
Tumas, John	*Chicago*
Vella, Ninetta	*Chicago*
Waxman, Lewis William	*Chicago*

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*Deceased.

SPECIAL STUDENTS

SECOND YEAR

Gardner, Burke	*McLean*
Leckband, Theodore August, Ph.G., 1915	*Chicago*
Sister Wilhelmina	*Chicago*

FIRST YEAR

Aron, David	*Chicago*
Dinnsen, Harry Nicholas	*Chicago*
Dubsky, Mrs. Antoinette M.	*Chicago*
Feeney, James Francis	*Chicago*
Fox, Matthew M.	*Chicago*
Gordon, Oscar	*Chicago*
Janda, Joseph	*Chicago*
Knaak, Emile Elizabeth	*Deerfield*
Lawton, Ray	*Taylorville*
Lesser, Hyman	*Chicago*
Maether, Carl	*Chicago*
Reinschreiber, Meyer	*Chicago*
Still, Floyd Benton	*DeKalb*
Van Tongeren, Perry John	*Chicago*
Volk, Paul	*Chicago*
Walker, Charles William	*Kankakee*
White, Florence Edythe	*Litchfield*

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COLLEGE OF DENTISTRY

1838 W. Harrison St., Chicago
Opposite the Cook County Hospital

Full course of instruction leading to the degree of Doctor of Dental Surgery. Four-year curriculum. Fifteen units from accredited high school for admission.

Infirmary open daily

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1838 W. Harrison St., Chicago, Ill.

UNIVERSITY OF ILLINOIS

COLLEGE OF MEDICINE

College term begins October 1, 1919. Entrance requirements: fifteen units of work from an accredited high school and two years work in a recognized college or university, comprising not less than sixty semester hours, including prescribed subjects.

Superior clinical facilities. Five year curriculum (including one year of interne service in an approved hospital) leading up to the degree of Doctor of Medicine. Degree of Bachelor of Science conferred at the end of the second year in medicine in accordance with conditions set forth in catalog. For full information, address Secretary, College of Medicine, University of Illinois, 508 South Honore Street, Chicago.

INDEX

Admission 14
Advanced Standing 16
American Conference of Faculties 8
Announcement of the Session 11
Bacteriology, Courses in 19, 20
Botany, Course in 18
Buildings, Description of 12
Calendar of the School Year 9
Chemistry, Courses in 18, 19, 20
Course, Two-Year, for Ph.G 17
Course, Three-Year, for Ph.C 19
Degrees, 1919 26
Employment, Opportunities for 24
Entrance Examinations 16
Entrance Requirements 14
Entrance as a Special Student 16
Equipment, Description of 12, 13
Faculty 7
Fees and Expenses 23
Graduation, Requirements for 16
History 10
Library 13
Loan Fund, Woman's 22
Materia Medica, Courses in 18, 19
Microscopy, Course in 20
Pharmacognosy, Course in 19
Pharmacy, Courses in 17, 18, 19
Physiology, Courses in 18
Prizes 23
Requirements for Entrance 14
Requirements for Graduation 16
Schedules of Class Hours 25
Scholarships 21
Special Students, Admission as 16
Students, List of 27, 28, 29
Trustees and Officers 5
University of Illinois, Departments 1

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1921/22

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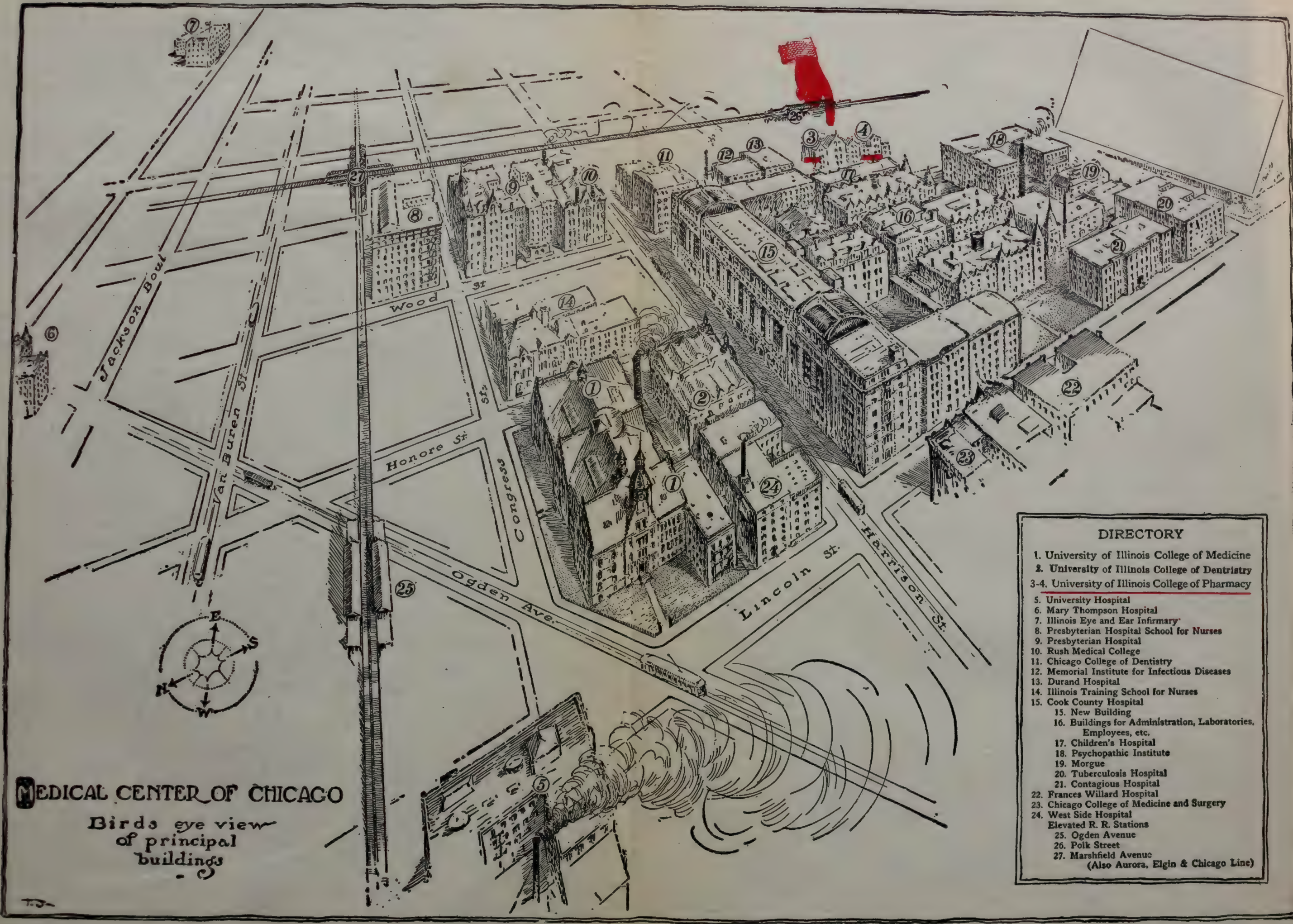
UNIVERSITY OF ILLINOIS

School of Pharmacy

1921-1922

CHARTERED 1867.

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
CHICAGO



MEDICAL CENTER OF CHICAGO

Birds eye view
of principal
buildings

DIRECTORY

1. University of Illinois College of Medicine
2. University of Illinois College of Dentristry
3-4. University of Illinois College of Pharmacy
5. University Hospital
6. Mary Thompson Hospital
7. Illinois Eye and Ear Infirmary
8. Presbyterian Hospital School for Nurses
9. Presbyterian Hospital
10. Rush Medical College
11. Chicago College of Dentistry
12. Memorial Institute for Infectious Diseases
13. Durand Hospital
14. Illinois Training School for Nurses
15. Cook County Hospital
    15. New Building
    16. Buildings for Administration, Laboratories, Employees, etc.
    17. Children's Hospital
    18. Psychopathic Institute
    19. Morgue
    20. Tuberculosis Hospital
    21. Contagious Hospital
22. Frances Willard Hospital
23. Chicago College of Medicine and Surgery
24. West Side Hospital

Elevated R. R. Stations
    25. Ogden Avenue
    26. Polk Street
    27. Marshfield Avenue (Also Aurora, Elgin & Chicago Line)

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

URBANA

DAVID KINLEY, Ph.D., LL.D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics, Political Science, Sociology; Philosophy, Psychology; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design)

The College of Commerce and Business Administration (General Business, Banking, Insurance, Accountancy, Railway Administration, Foreign Commerce; Courses for Commercial Teachers and Commercial and Civic Secretaries)

The College of Engineering (Architecture; Architectural, Ceramic, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Agricultural Extention; Teachers' Course; Home Economics)

The College of Law (Three-year and four-year curriculums based on two years and one year of college work respectively.)

The College of Education

The Curriculum in Journalism

The Curriculums in Chemistry and Chemical Engineering

The School of Railway Engineering and Administration

The School of Music (four-year curriculum)

The School of Library Science (two-year curriculum for college graduates)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. curriculums)

The Summer Session (eight weeks)

Experiment Stations and Scientific Bureaus: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; U. S. Bureau of Mines Experiment Station.

The library collections contain (April 1, 1921) 490,274 volumes and 116,663 pamphlets.

For catalogs and information address

THE REGISTRAR
Urbana, Illinois

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English	6 semester hours
Chemistry	6 semester hours
Biology or physics	6 semester hours
Electives	6 semester hours

Selected from the following (a modern foreign language, history, mathematics, technical drawing, shop practice).

Free electives	6 semester hours

Infirmary open daily

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The Secretary, College of Dentistry, University of Illinois
1838 W. Harrison St., Chicago, Ill.

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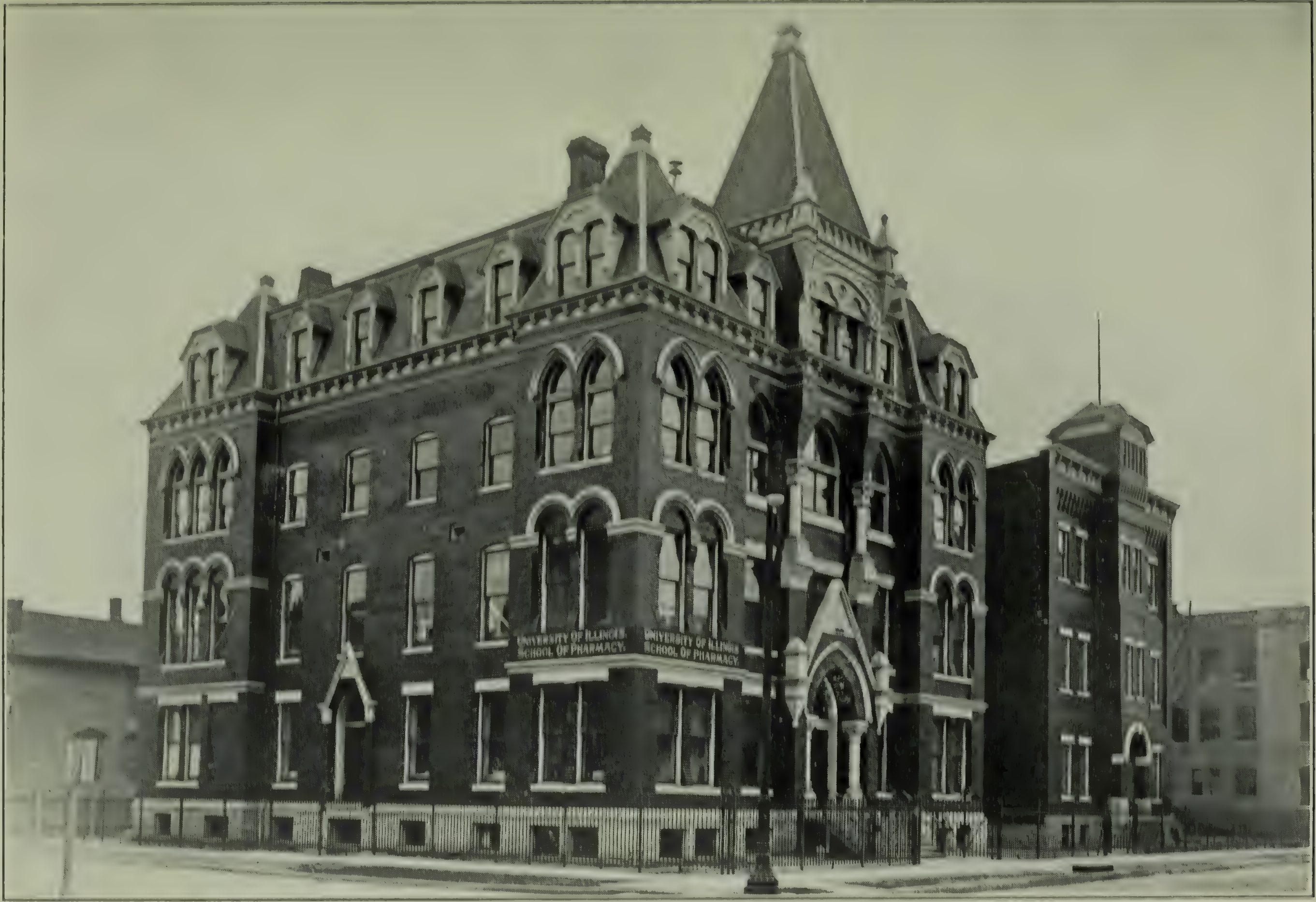

THE PHARMACY BUILDINGS

Sixty-second Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

REGISTER FOR 1920-2921
SESSION OF 1921-1922

PUBLISHED BY THE UNIVERSITY
CHICAGO

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1921/22

THE BOARD OF TRUSTEES

MEMBERS EX-OFFICIO

The Governor of Illinois

HON. LEN SMALL	*Springfield*

The Superintendent of Public Instruction

HON. FRANCIS G. BLAIR	*Springfield*

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OTIS W. HOIT	*Geneseo*

(Term, 1919-1925)

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JOHN M. HERBERT	*Murphysboro*
CAIRO A. TRIMBLE	*Princeton*

(Term, 1921-1927)

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LAURA B. EVANS	*Taylorville*
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JOHN H. HARSCH, Peoria
O. U. SISSON, Chicago
G. E. BAUMANN, Springfield
BYRON ARMSTRONG, Jacksonville

. This School holds membership in the American Conference of Pharmaceutical Faculties. The object of the conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the same must maintain certain minimum requirements for entrance and graduation. Through the influence of this conference higher standards of education have been adopted from time to time and the fact that several states by law or by Board of Pharmacy ruling recognize the standards of the conference is evidence of this influence.

FACULTY—1920-1921

David Kinley, Ph.D., LL.D., *President of the University*

William Baker Day, Ph.G., Pharm.M., *Dean, Secretary of the Faculty; Professor of Materia Medica and Botany*

Clyde Mason Snow, Ph.G., M.A., *Professor of Pharmacy*

Albert Henry Clark, Ph.G., B.S., *Professor of Chemistry*

Edmund Norris Gathercoal, Ph.G., *Assistant Professor of Pharmacognosy*

Willis Kuhn Weaver, A.B., B.S., *Instructor in Chemistry*

James Tobias Groot, B.S., *Lecturer on Physiology*

John August Dorjahn, Ph.G., *Assistant in Pharmacy*

Josephine Marion Dyniewicz, Ph.C., *Assistant in Chemistry*

Ralph E. Terry, Ph.G., *Assistant in Pharmacognosy*

CALENDAR—1921-1922

First Semester

1921

SEPTEMBER 12-16—
Examinations for admission.

SEPTEMBER 19-24—
Registration days.

SEPTEMBER 26—Monday, 10 a. m.
First semester begun.

NOVEMBER 23—Wednesday, 12 m.
Thanksgiving recess begun.

NOVEMBER 28—Monday, 9 a. m.
Instruction resumed.

DECEMBER 22—Thursday, 5 p. m.
Holiday recess begun.

1922

JANUARY 3—Tuesday, 9 a. m.
Instruction resumed.

JANUARY 30-FEBRUARY 3.
Semester examinations.

Second Semester

FEBRUARY 6—Monday, 9 a. m.
Second semester begun.

FEBRUARY 12—Sunday.
Lincoln Day.

FEBRUARY 22—Wednesday.
Washington Day.

APRIL 12—Wednesday, 5 p. m.
Easter recess begun.

APRIL 17—Monday, 9 a. m.
Instruction resumed.

MAY 30—Tuesday.
Memorial Day.

MAY 31—Wednesday.
Examinations begun.

JUNE 2—Friday.
Examinations ended.

JUNE 8—Thursday.
Alumni meeting.

JUNE 14—Wednesday.
Commencement of the University of Illinois at Urbana

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the Eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and botany were made obligatory.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the School, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building located at Michigan boulevard and Twelfth street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy streets, comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916.

On May 22, 1917, the School of Pharmacy of Northwestern University was taken over by the University of Illinois.

ANNOUNCEMENT

The sixty-second annual course of instruction in the University of Illinois School of Pharmacy will begin Monday, September 26, 1921, at ten o'clock in the morning.

The course will continue thirty-six weeks. The graduating exercises will be held with the other departments of the University on Wednesday, June 14, 1922.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care, from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In thirteen states a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men and women of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The New Location

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street, and Ashland Avenue surface lines all pass within a short distance of the School.

There are many boarding and rooming places in the vicinity where accommodations can be had at reasonable rates.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

THE COLLEGE BUILDINGS

The college buildings include two substantial brick structures, which are connected by a stair-tower building affording a corridor at each floor. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for commercial manufacturing, the laboratory for quantitive analysis, the laboratory for qualitive analysis, and several private laboratories for the teachers, as well as store rooms and supply rooms.

THE LECTURE HALLS

The third and fourth floors of the College building are largely occupied by an auditorium, capable of seating two hundred and fifty persons. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and twenty. A smaller hall on the same floor is provided with school desks for ninety persons.

THE LABORATORIES

Four general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about two hundred and fifty students working at one time. The laboratories are provided with gas, electricity, hot and cold water, distilled water, and compressed air.

THE PHARMACEUTICAL LABORATORY

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

THE LABORATORY FOR COMMERCIAL MANUFACTURING

This laboratory, recently installed, is planned to afford practical experience to students in the handling and use of apparatus and machinery found in commercial work. Among the types are a porcelain-lined pebble mill, a pony mixer, an ointment mill, a drug mill, a pill coater, and a tablet machine. All are power driven. In addition there is a vacuum pan complete with condenser and electric pump, a rotary sifter and mixer, a large tincture press, five and ten gallon enameled iron percolators, a drying oven, sieves, and smaller pieces used in a pharmaceutical laboratory. Electricity, gas, hot and cold water, and compressed air are provided. The outfit is installed in a large light room with a concrete floor which can readily be flushed out.

THE LABORATORY FOR PHARMACOGNOSY

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica collection of six hundred samples of crude drugs. The equipment is new.

THE BACTERIOLOGICAL LABORATORY

The Bacteriological Laboratory is situated on the third floor of the College Building and has accommodations for ten students. The equipment includes microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided.

THE QUALITATIVE LABORATORY

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stands for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, compressed air and hydrogen sulphide are piped, are provided. The equipment is new.

THE QUANTITATIVE LABORATORY

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-four students, each stand having a complete equipment. Connected with this laboratory is a smaller room provided with two electric ovens, a centrifuge, a Kjeldahl apparatus, and several drying ovens. Also a balance room equipped with fifteen analytical balances for class use.

THE LIBRARY

The Library adjoins the office on the first floor of the College Building. It contains about four thousand volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

THE MUSEUM

The Museum occupies two large rooms on the third floor of the College Building. It is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

THE STUDENTS' ROOM

A locker room for students is provided with 200 steel lockers for coats, hats, and books. A lounging room for the men and a rest room for women students are also provided.

ADMISSION

The requirements for admission to the School of Pharmacy of the University of Illinois are as follows:

1. HIGH SCHOOL GRADUATION

A candidate for admission *by certificate* must be a *graduate* of an accredited high school or other accredited school, with fifteen units* in acceptable subjects. By acceptable subjects are meant the subjects included in Lists A, B, and C below; not more than three units to be chosen from List C.

An applicant who *has not been graduated* from an accredited school must pass entrance examinations in the following subjects, amounting to 5 units:

English composition	1 unit
Algebra	1 unit
Additional subjects to be designated by the University authorities	3 units
Total	5 units

The remaining 10 units necessary to make up the 15 units required for admission may also be made in entrance examinations or may be offered by certificate from an accredited school.

2. PRESCRIBED SUBJECTS

The fifteen units required must include the following subjects, which are *prescribed* for admission to all departments of the University of Illinois:

LIST A

English	3 units
Algebra	1 unit
Plane geometry	1 unit
Physics, or chemistry, or botany, or zoology, or physiology, or physiography, with laboratory work	1 unit
Total	6 units

3. ELECTIVES

The remaining 9 units must be selected from List B and C, which follow. *Not more than 3 units may be chosen from List C.*

LIST B

		Units
Latin	36 to 144 weeks	1-4
Greek	36 to 108 weeks	1-3
French	36 to 144 weeks	1-4
German	36 to 144 weeks	1-4
Spanish	36 to 144 weeks	1-4
Italian	36 to 72 weeks	1-2

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*By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall not be less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall not be less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-school students ordinarily take four subjects at a time throughout the four years of the high-school course, 15 units represent approximately four years of high-school work.

		Units
Norwegian	36 to 72 weeks	1-2
Swedish	36 to 72 weeks	1-2
Polish	36 to 72 weeks	1-2
English (4th unit)	36 weeks	1
Advanced Algebra	18 or 36 weeks	½-1
Solid Geometry	18 weeks	½
Trigonometry	18 weeks	½
History[1]	36 to 144 weeks	1-4
Civics	18 or 36 weeks	½-1
Economics and economic history	18 or 36 weeks	½-1
Commercial geography	18 or 36 weeks	½-1
Astronomy	18 weeks	½
Geology	18 or 36 weeks	½-1
Physiography	18 or 36 weeks	½-1
Physiology	18 or 36 weeks	½-1
Zoology	18 or 36 weeks	½-1
Botany	18 or 36 weeks	½-1
Physics	36 to 72 weeks	1-2
Chemistry	36 to 72 weeks	1-2
General science	18 to 36 weeks	½-1

4. ADDITIONAL ELECTIVES: LIST C

The remaining 3 units may be chosen either from List B above or from List C:

LIST C[2]		*Units*
Agriculture	36 to 108 weeks	1-3
Bookkeeping	36 weeks	1
Business law	18 weeks	½
Commercial arithmetic	18 weeks	½
Domestic science	36 to 108 weeks	1-3
Drawing, art and design	18 or 36 weeks	½-1
Drawing, mechanical	18 or 36 weeks	½-1
Manual training[3]	36 to 72 weeks	1-2
Music	36 to 72 weeks	1-2
Shorthand and typewriting[4]	36 to 72 weeks	1-2

HOW THE ENTRANCE REQUIREMENT MAY BE MET

The high-school requirement may be satisfied either by certificate or by examination.

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[1] Greek and Roman history, 1 unit; medieval and modern history, 1 unit; English history, ½ or 1 unit; American history, ½ or 1 unit.

[2] The subjects named in List C must be taught in accordance with specifications which are set forth in the High-School Manual. Further information may be had on application to the High-School Visitor.

[3] In giving credit for manual training the University specifies that the work is to be done by competent teachers, as determined by inspection, and that credit shall not exceed one unit for 360 forty-minute periods of work, including the necessary drawing and shop work.

[4] These two subjects must be offered together; no credit is given for either one offered separately.

HIGH-SCHOOL CREDITS BY CERTIFICATE

High-school credits will be accepted by certificate from the following sources.

1. From high schools and academies in the State of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools, provided the certificate shows that the Illinois standard time requirements have been met.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From schools accredited by the Southern Association of Colleges and Secondary Schools.
7. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

HIGH-SCHOOL CREDITS BY EXAMINATION

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of these entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

ADMISSION ON PROBATION ON PRINCIPAL'S RECOMMENDATION

A student who has been graduated from an accredited school, whose high-school course includes fifteen units, six of which are made up from List A, but whose high-school credits do not completely meet the requirements with respect to the selection of electives from Lists B and C, may be admitted to the University *on trial* for one semester *on the special recommendation of his high-school principal*; with the proviso that he shall be dropped automatically at the end of the first semester if he fails in more than one-third of his work, and that if his grades in more than one-fourth of his work are below C he *may* be dropped on the recommendation of his college faculty. Such a student during his trial period is not permitted to take part in any public exhibition, or serve on the staff of any student publication, or hold or become a candidate for any undergraduate office.

SPECIAL STUDENTS

Registered pharmacists, assistants, or apprentices of Illinois, or of other states having equal requirements, may be admitted as special students *not candi-*

dates for a degree, if unable to meet the foregoing educational requirements, provided that such special students are *twenty-one years of age* or over and are qualified to do the work of the School. A concession is made in favor of registered apprentices who were registered in Illinois before July 1, 1917; such apprentices will be admitted as special students, even if under age. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

The Degree of Graduate in Pharmacy

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age will receive a certificate and will be awarded the diploma when this requirement is satisfied.

The Degree of Pharmaceutical Chemist

The candidate for the degree of Pharmaceutical Chemist must have successfully completed the course leading to the degree of Graduate in Pharmacy in this school or in some other recognized college or school of pharmacy whose requirements for admission and graduation are equivalent to ours. He must have satisfactorily completed the work of the third year at this school.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of first-year students on three days each week; second year students on four or five days. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—FIRST YEAR

1. *Theoretical Pharmacy.*—Pharmacy in its historical, professional, and legal relations, metrology, and specific gravity; pharmaceutical arithmetic; conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; drills in percentage and alligation as applied to pharmaceutical preparations; processes of operative pharmacy; use of apparatus, utensils, and devices employed in pharmaceutical practice; heat, its source and uses; solution, its phenomena, effects and causes; filtration, extraction, and their modifications. Three lectures and recitations each week. First semester.

2. *Galenical Pharmacy.*—Solutions and mixtures official in the United States Pharmacopoeia and National Formulary; methods of preparation and strengths; synonyms, common uses, and doses. Three lectures and recitations each week. First half, second semester.

3. *Pharmacy of the Inorganic Substances.*—The elements, inorganic compounds and preparations; pharmaceutical and technical uses; posology and therapeutic applications. Three lectures and recitations each week. Second half, second semester.

4. *Pharmaceutical Laboratory.*—Preparations illustrative of the various processes and operations outlined in Pharmacy 1. One laboratory period of three hours each week. First semester.

5. *Pharmaceutical Laboratory.*—Manufacture of the simpler preparations of the United States Pharmacopœia and National Formulary. One laboratory period of three hours each week. Second semester.

6. *Dispensing.*—Preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding in prescription form. One laboratory period of one hour each week. Second semester.

CHEMISTRY—FIRST YEAR

1. *Theoretical Chemistry.*—General principles of chemistry in connection with the non-metallic elements; nature of acids, bases, and salts from the standpoint of the modern theories of ionization and dissociation. Two lectures, one recitation each week. First semester.

2. *General Chemistry.*—A study of the metals, in which the theories and principles of chemistry learned in course 1 are applied. Two lectures, one recitation each week. Second semester.

3. *Qualitative Analysis.*—Identification of the various inorganic acid radicals and the more common metals; the examination of about thirty unknown mixtures; the special qualitative tests of the United States Pharmacopœia; examination of medicinal chemicals for identity and purity. One lecture and one laboratory period of two hours each week. First semester.

4. *Qualitative Analysis.*—A continuation of Chemistry 3. One lecture and one laboratory period of three hours each week. Second semester.

MATERIA MEDICA AND BOTANY—FIRST YEAR

1. *General Botany.*—A general course dealing chiefly with the flowering plants. Two lectures, one recitation and one laboratory period of one hour each week. First semester.

2. *Plant Histology.*—The microscopic structure of plants; the technic of the microscope; the operations of lighting, focusing, drawing, measuring, cut-

ting, mounting objects; the application of micro-chemical tests, staining, etc. One laboratory period of two hours each week. First semester.

3. *Plant Histology.*—A continuation of Botany 2. One laboratory period of three hours each week. Second semester.

4. *Physiology and Hygiene.*—A general course with instruction in caring for emergency cases. Two lectures and one recitation each week. First semester.

5. *Materia Medica.*—General principles of materia medica; classification of medicines based on therapeutic action; incompatible drugs, posology and toxicology. Two lectures, one recitation, and one laboratory period of one hour each week. Second semester.

PHARMACY—SECOND YEAR

7. *Galenical Pharmacy.*—A continuation of Pharmacy 2. Infusions, decoctions, tinctures, fluid extracts and resins. Preparations for internal use: powders, masses, pills, confections, troches, capsules, cachets, and tablets. Preparations for external use: ointments, cerates, suppositories, and plasters. Three lectures and recitations each week. First semester.

8. *Organic Substances.*—Preparation, purification, identity, purity, and strength, pharmaceutical preparations, medicinal uses, and doses. Three lectures and recitations each week. Second semester.

9. *Pharmaceutical Laboratory.*—Preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy. One laboratory period of four hours each week. Both semesters.

10. *Dispensing.*—Preparation of mixtures adapted to extemporaneous compounding. Typical prescriptions, methods for the prevention or modification of incompatibilities. Drills in prescription reading, Latinity and abbreviations, foreign synonyms, directions, and posology. One lecture or recitation and one laboratory period of two hours each week. Both semesters.

CHEMISTRY—SECOND YEAR

5. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. Simple hydrocarbons and their derivatives; alcohols, ethers, aldehydes, acids, esters, and carbohydrates. Two lectures and one recitation each week. First semester.

6. *Organic Chemistry.*—Aromatic hydrocarbons and their derivatives; synthetic remedies and alkaloids. Two lectures, one recitation each week. Second semester.

7. *Elementary Quantitative Analysis.*—Typical examples of gravimetric analysis as applied to the determination of the purity and strength of medicinal substances. Two lectures or recitations and two laboratory periods of three hours each week. First semester.

8. *Quantitative Analysis.*—Volumetric processes of the United States Pharmacopœia. Analysis of organic substances and alkaloids. Two lectures or recitations and two laboratory periods of three hours each week. Second semester.

MATERIA MEDICA—SECOND YEAR

6. *Materia Medica.*—Vegetable drugs in botanic sequence; animal drugs; titles, synonyms, collection, preservation, standardization, therapeutic use, dose, and preparations. Two lectures and one recitation each week. Both semesters.

7. *Pharmacognosy.*—A laboratory study, following materia medica 6. Recog-

nition, description, and characteristic features. Methods employed in detection of adulterations in powdered drugs. One laboratory period of three hours and one written quiz each week. First semester and first half, second semester.

8. *Bacteriology.*—Characteristics of bacteria; morphology, structure, and classification; chemical composition, vital phenomena, and chemical effects. Relation of bacteria to disease; theories of infection and immunity; ferments, ptomaines, toxins and anti-toxins. Action of antiseptics, disinfectants, and bactericidal substances. Preparation of culture media and staining solutions; methods of cleaning and sterilizing glassware; methods of making plate cultures and colonies; technic of cover-glass slips. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-six weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practice.

CHEMISTRY—THIRD YEAR

9. *Organic Chemistry.*—Organic methods. Qualitative detection of elements. Synthesis of typical compounds. One lecture or recitation and two laboratory periods of three hours each week. First semester.

10. *Advanced Quantitative Analysis.*—A continuation of Chemistry 7. Uranalysis is included. One lecture or recitation and two laboratory periods of three hours each week. First semester.

11. *Food Analysis.*—Alcohols, carbohydrates, oils, fats, flavors, colors, preservatives. One lecture or recitation and two laboratory periods of four hours each week. Second semester.

12. *Alkaloids.*—Alkaloidal assay methods of the United States Pharmacopœia together with a general survey of the constitution and behavior of alkaloids. One lecture or recitation and two laboratory periods of three hours each week. Second semester.

MICROSCOPY—THIRD YEAR

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants; practise in technical methods employed in their examination; micrometry, use of the micropolariscope, application of special reagents, etc.; the microscopic examination and identification of hairs, fibers, and textiles, urinary sediments, blood, pus, tubecasts, and crystalline substances. One lecture or recitation and two laboratory periods of three hours each week. First semester.

BACTERIOLOGY—THIRD YEAR

1. *Bacteriology*—A course in sanitary bacteriology, and the mycology and bacteriology of foods and drugs. Causal relation of microorganisms to disease; methods of determining the bacteria of milk and water; valuation of disinfectants; the methods of sterilization and diagnosis by means of bacterial

cultures. Two hours of lectures and recitations, seven hours of laboratory each week. Second half, second semester.

PHARMACY—THIRD YEAR

11. *Operative Pharmacy.*—Determination of physical constants. Manufacture of preparations of the United States Pharmacopœia and National Formulary; application of tests for purity and identity; extra-official preparations employed in this country and abroad. One lecture or recitation and three laboratory periods of three hours each week. First semester.

12. *Manufacturing Pharmacy.*—Preparation of potent tinctures, fluidextracts, resins, alkaloids, and other active principles; application of commercial assay processes. One lecture or recitation and three laboratory periods of three hours each week. First half, second semester.

13. *Manufacturing Pharmacy.*—Commercial and industrial methods for the manufacture of pills, tablets, ointments, effervescent salts, extracts, and dermatological preparations. An opportunity is afforded the student to use commercial labor-saving machinery. Manufacture and testing of organic preparations. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

GENERAL INFORMATION

COUNTY SCHOLARSHIPS

A law passed by the General Assembly of the State of Illinois at the session of 1905 and embodied in the General School Law of 1909 provides that one scholarship may be awarded annually to each county of the State. The holder thereof must be at least sixteen years of age, and a resident of the county to which he is accredited. No student who has attended the University of Illinois is eligible for appointment to a county scholarship. The holder of a county scholarship who registers in the School of Pharmacy is relieved of payment of the matriculation, registration, and tuition fees, but must make the laboratory deposits ($15.00 each year), pay the laboratory fees of $15.00 for each semester and pay the diploma fee of $10.00 at graduation.

Competitive examinations for these scholarships are held under the direction of the President of the University, and on such branches of study as the President may select, on the first Saturday in June of each year, at the county court house in each county by the County Superintendent of Schools. Questions for the examinations are furnished in advance to the County Superintendents.

The successful candidates in the examinations must then meet in full, either by certificate from an accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class, and must register the following September.

In case the scholarship in any county is not claimed by a resident of that county, the President of the University may fill the same by assigning to that county from some other county the student found to possess the next highest qualifications.

A student holding a scholarship who makes it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray expenses while in attendance, may, in the discretion of the President, be granted such leave of absence, and may be allowed an extension of his scholarship for not more than two years, making not more than six years in all from the beginning of the scholarship. Such extension will not be granted unless the student has been in attendance at the University for at least one full semester, nor unless the student's average grade during the period of his attendance has been at least 75, exclusive of grades in military science and physical education.

GENERAL ASSEMBLY SCHOLARSHIPS

The same act by which the county scholarships described above were established also provides that each member of the General Assembly may nominate annually one eligible person from his district for a scholarship in the University, granting the same privilege as the county scholarships.

A member of the General Assembly who wishes to nominate a candidate for a scholarship should file the name and address of his nominee as early in the spring as practicable and not later than June 1, with the President of the University.

The nominee, if a graduate of a school accredited by the University, is awarded the scholarship without examination and is admitted to the University on the same conditions as to educational qualifications as are graduates of such accredited high schools not so appointed to scholarships. If any such candidate is not a graduate of high school accredited by the University, he must present himself for examination under the County Superintendent in accordance with the rules established for competitors for the county scholarships. In this case the nominee must further (1) meet in full, either by certificate from accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class; and (2) must register in the University the following September.

A General Assembly scholarship may be extended under the same conditions as a county scholarship.

MILITARY SCHOLARSHIPS

An amendment to the same Act by which the County and General Assembly scholarships were established also provides that any person who served in the army, navy or marine corps of the United States, not including members of the Students' Army Training Corps during the World War, who, at the time of entering upon such service, was a resident of this state, and who has been honorably discharged from such service, and who shall possess all necessary entrance requirements shall, upon application and proper proof, be awarded a University of Illinois scholarship.

Any person who served as above stated, and who, at the time of entering upon such service, was a student at the University of Illinois, and who was honorably discharged from such service, shall, upon application and proper proof, be entitled to finish and complete his course of study at the University of Illinois without tuition and matriculation charges, but such person shall not be entitled to more than four years of gratuitous instruction.

In the School of Pharmacy, holders of military scholarships pay the same fees and deposits as holders of County and General Assembly scholarships, namely, $15.00 each year, as a laboratory deposit; $15.00 for each semester of each year laboratory fees and $10.00 diploma fee at graduation.

It is provided, however, that these scholarships shall not apply to persons who were convicted by court martial of disobedience of orders, where such disobedience consisted of the refusal to perform military service on the ground of alleged religious or conscientious objections against war.

Qualifications of Candidates

To be eligible for appointment to a Military Scholarship, a candidate must establish the following facts:

(1) That he served in the army, the navy, or the marine corps of the United States, exclusive of the Students' Army Training Corps, during the World War.

(2) That he was honorably discharged from such service.

(3) That he was not convicted by court-martial of disobedience of orders, consisting in the refusal to perform military service "on the ground of alleged religious or conscientious objections against war."

(4) That at the time of entering upon his service he was a resident of the State of Illinois or a student in the University of Illinois.

(5) That he possesses "all necessary entrance requirements"; i. e., that he can meet in full the requirements for matriculation in the college or curriculum which he proposes to enter.

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild of New York City offers a scholarship, annually, amounting to three hundred dollars, to high-school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have completed a four-year high-school course and must have successfully finished their first year's work in a school of pharmacy holding membership in the American Conference of Pharmaceutical Faculties. The award will be made by competitive examination. Not more than two candidates may be offered from any one school.

WOMAN'S LOAN FUND

In May, 1917, the Woman's Organization of the Chicago Retail Druggists' Association gave to the University the sum of $115.00, to be used in establishing a loan fund in the School of Pharmacy. In June, 1921, the Organization added $116.00 to this fund. With accumulated interest the amount now available is $242.34. This fund is to be lent to one or two deserving women students, preferably from Illinois, who are enrolled in the School. The loan is made upon the recommendation of the Dean and is to be repaid within three years for a junior student and within two years for a senior student, dating from the ensuing thirtieth of June. A note of hand bearing five per cent interest from the time the recipient leaves school is taken for the amount.

HONORS AND PRIZES

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

Chemistry Prize.—Mr. Leo L. Mrazek, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in chemistry.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

Class Honors, in both the junior and the senior years are awarded to such students as attain a general average of ninety per cent or above.

FEES AND EXPENSES

	Course for Graduate in Pharmacy				Course for Pharmaceutical Chemist	
	First Year		*Second Year*		*Third Year*	
	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester
Matriculation*	$10.00	.....	.....	.....	.....	.....
Registration	5.00	.....	$ 5.00	.....	$ 5.00	.....
Tuition	30.00	$30.00	30.00	$30.00	47.50	$47.50
Laboratory fee†	15.00	15.00	15.00	15.00	15.00	15.00
Laboratory deposit†	15.00	.....	15.00	.....	15.00	.....
Diploma	.....	.....	.....	10.00	.....	10.00
	$75.00	$45.00	$65.00	$55.00	$82.50	$72.50

ADDITIONAL FEES

Duplicate diploma, $10.00. **Original transcript of record, $1.00; for each carbon copy of same, 50 cents.

Payment of Fees.—All fees are payable in advance during the registration days of each semester. Exceptions to this rule will be made only with the approval of the proper administrative officer. Special students pay no matriculation nor diploma fees.

Rebates of Fees.—In case a student withdraws from the school within ten days after the beginning of the instruction the total amount of his fees except the matriculation fee and the registration fee will be refunded. After ten days and before the expiration of one month a refund of three-fourths of the tuition and laboratory fees will be made. After one month and before the expiration of two months a refund of one-half of these fees will be made. After two months and before the expiration of three months a refund of one-fourth of the fees will be made. After the expiration of three months no part of the fees paid will be refunded.

Board and Lodging.—The expense of board and room together is from $10 to $15 a week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Y. M. C. A. secretary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

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*Not required in the case of students who have previously matriculated in any other college of the University of Illinois.

†The laboratory fee covers all drugs, chemicals and other material consumed by the student in the laboratories. The laboratory deposit covers breakage or damage to apparatus furnished by the school. From this deposit will be deducted the charges for apparatus broken, missing or not returnable. also a locker fee of $1 if the student uses a locker in the coatroom.

**Each student is entitled to one transcript of record, without a fee, but he must pay for extras in the way of carbons supplied with the original transcript or for second request for original.

Books.—The expense of books is moderate. About thirty-five dollars will purchase all the books required for the Ph.G. course. For the Ph.C. course the expenditure for books will be somewhat more.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to the students at the opening of the session in the order in which students are registered. The process of registration includes the submission of credentials satisfying the entrance requirements and the payment of the registration fee of five dollars.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying their personal expenses wholly or in part.

A register of students desiring employment and of pharmacists wishing to employ students is kept at the School. Students desiring employment are invited to correspond with the School.

There are among the one thousand drug stores of Chicago and suburbs many model pharmacies where the student may obtain valuable experience.

CHICAGO BRANCH OF THE A. PH. A.

The Chicago Branch of the American Pharmaceutical Association composed of representative pharmacists of Chicago and vicinity has its headquarters at the School of Pharmacy. Meetings for the discussion of subjects of pharmaceutical interest are held monthly during the session. Students of pharmacy are eligible to membership or may attend these meetings without becoming members and without expense.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois State Department of Education and Registration, or register by reciprocity with another state. Illinois reciprocates with forty-three states on the basis of presentation of a diploma from a recognized school of pharmacy and registration by examination in any one of these states.

The diploma of this School is accepted in all states where graduation prerequisite laws are in force, as admitting to the licensing examination.

The amendments to the Illinois Pharmacy law in effect July 1, 1917, require that a candidate for the certificate of registered pharmacist be of the age of twenty-one years or over, of good moral character and temperate habits, a graduate from a school of pharmacy recognized by the State Department of Registration and Education, and who has had four years experience in pharmacy. Actual time of attendance at a recognized school of pharmacy, but not to exceed two years, will be allowed on the four years experience required by law. The remainder of the experience must have been in compounding and dispensing drugs, medicines, and poisons under the supervision of a registered pharmacist in a drug store or pharmacy where the prescription of medical practitioners are compounded. Exemption from the graduation requirement is provided for such registered apprentices and assistant pharmacists who were registered by the Board of Pharmacy prior to July 1, 1917.

For further information or for a matriculation blank, address

701 South Wood St., Chicago, Ill. W. B. Day, *Dean*.

SCHEDULE OF CLASSES—FIRST YEAR
FIRST SEMESTER

HOURS	MONDAY	WEDNESDAY	FRIDAY
9 to 10 a. m.	Chemistry Recitation	Pharmacy Recitation	Botany Recitation
10 to 11 a. m.	Pharmacy Lecture	Chemistry Lecture	Chemistry Lecture
11 a. m. to 12 m.	Botany Lecture	Botany Lecture	Pharmacy Lecture
1 to 2 p. m.	Physiology Lecture	Physiology Lecture	Physiology Recitation
2 to 5 p. m.	(Section 1) Chemical Laboratory	(Section 2) Chemical Laboratory	(Section 2) Microscopical Laboratory
2 to 5 p. m.	(Section 2) Pharmaceutical Laboratory	(Section 1) Microscopical Laboratory	(Section 1) Pharmaceutical Laboratory

SCHEDULE OF CLASSES—SECOND YEAR
FIRST SEMESTER

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 to 10 a. m. Chemistry Lecture	9 a. m. to 12 m. Pharmacognosy Laboratory	9 to 10 a. m. Pharmacy Recitation	10 to 11 a. m. Pharmacognosy Written Quiz
10 to 11 a. m. Pharmacy Lecture	1 to 2 p. m. Pharmacy Lecture	10 to 11 a. m. Chemistry Lecture	11 a. m. to 12 m. Materia Medica Recitation
11 a. m. to 12 m. Materia Medica Lecture	2 to 5 p. m. Pharmacy Laboratory	11 a. m. to 12 m. Materia Medica Lecture	1 to 2 p. m. Chemistry Recitation
1 to 4 p. m. Dispensing Laboratory		1 to 5 p. m. Chemistry Laboratory	2 to 5 p. m. Chemistry Laboratory

THIRD YEAR—(Ph.C. Course)
FIRST SEMESTER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Pharmacy	9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Microscopy	9 a. m. to 12 m. Pharmacy
1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Pharmacy

DEGREES, 1921

DEGREE OF GRADUATE IN PHARMACY

Victor Ambrose Barcroft
Paul Elzevir Barton
James B. Berardi
James Blower
William Paul Brann
Floyd Marion Byers
Gerald S. Chapman
Moses Philip Covnot
Mario Louis Dunghi
Louis D. Eisele
Howard J. Falkenstein
Walter Raymond Fallon
Leslie Vincent Fay
Kenneth Newton Fenn
Dina Margaret Froiland
Clarence H. Graham
Glen Franklin Hurdle
Leonard Ferdinand Johnson
John Thomas Kachinskas
Isadore I. Katz
Henry Carl Kelch
Lloyd Newton Kunkel
Raymond Albert Leach
Ralph Clark Mapes
Lewis E. Martin
Francis James Merlak
Cyril Arnold Philps
Cleon K. Plummer
Wesley J. Robinson
William Theodore Roeseler
Henry Carl Saltiel
Leo Emerson Sample
Herbert C. Schmid
Norma-Claire Schulte
Sumner S. Seibert
Herbert Skoglund
Adolph W. Sorenson
Ferdinand A. Spagna
Louis C. Spinner
Stanley Lucian Stanczak
Lloyd Stoner
Antoinette Stulik
Charles S. Thompson
Charles Paul Tuma
Louis R. Weiss
Maxon H. Whitney
David Rangnald Anderson (Class of '20)
Josephine Cecilia Hauber (Class of '20)
Jarsolav Robert Madera (Class of '20)
Libbey Dedic (Class of '19)
Victor Alfred Elliott (Class of '19)
Harold Vernon Jones (Class of '19)
Georgina Grace Bower (Class of '18)
Walter Harry Dimond (Class of '18)
William Sylvester White (Class of '11)

CERTIFICATES

Edward F. Antonides
Leslie Clare Byers
David P. Grossman
Leo D. Levinson
George Milles
Louis Frank Plzak
Isadore Erwin Silberman
Jo Spiller Stotlar
Edward Sykora
Madge Orlene Walborn

HONORS—SENIOR CLASS

Joseph L. Petranek—The Andrew Scherer Prize
George Milles—The Leo L. Mrazek Prize
Dina Margaret Froiland—Wm. Gray Membership A. Ph. A.
Lewis E. Martin—A. Ph. A. Membership in Chemistry
Norma-Claire Schulte—A. Ph. A. Membership in Pharmacy
Moses Covnot—A. Ph. A. Membership in Materia Medica

HONORS—JUNIOR CLASS

Rebecca Rosenblum
Henry Nielsen Bexfield
Abraham Mair Africk
George Lewis Webster
Darwin Romanes Turner

LIST OF STUDENTS—1920-1921

COURSE FOR GRADUATE IN PHARMACY

SENIORS

Antonides, Edward	*Chicago*
Barcroft, Victor Ambrose	*Litchfield*
Barnard, Frederick Stebbins	*Upper Alton*
Barton, Paul Elzevir	*Litchfield*
Berarde, James B.	*Chicago*
Blower, James A.	*Clinton, Indiana*
Brann, William Paul	*Cave-in-Rock*
Byers, Floyd Marion	*Genoa*
Byers, Leslie Clare	*Genoa*
Chapman, Gerald S.	*Winslow, Arizona*
Cohen, Abraham Edward	*Chicago*
Covnot, Moses Philip	*Streator*
Dunghi, Mario Louis	*Buffalo, New York*
Eisele, Louis D.	*New Berlin*
Falkenstein, Howard J.	*Astoria*
Fallon, Walter Raymond	*Chicago*
Fay, Leslie Vincent	*Dwight*
Fenn, Kenneth Newton	*Prophetstown*
Froiland, Dina Margaret	*Westby, Wisconsin*
Graham, Clarence Henry	*Carlinville*
Grossman, David Percy	*Chicago*
Hurdle, Glenn Franklin	*Mt. Sterling*
Johnson, Leonard Ferdinand	*Barron, Wisconsin*
Kachinskas, John	*Chicago*
Katz, Isadore	*Chicago*
Kelch, Henry C.	*Decatur*
Kunkel, Lloyd Newton	*Litchfield*
Leach, Raymond Albert	*Warren, Ohio*
Levinson, Leo David	*Chicago*
Mapes, Ralph Clark	*Rising Sun, Indiana*
Martin, Lewis Elbert	*Monticello*
Mendelsohn, Philip	*Chicago*
Merlak, Francis	*Chicago*
Milles, George	*Chicago*
Philps, Cyril Arnold	*Camp Douglas, Wis.*
Plummer, Cleon Kermit	*Chicago*
Plzak, Louis Frank	*Cicero*
Robinson, Wesley J.	*Peru*
Roeseler, William Theodore	*Chicago*
Saltiel, Henry Carl	*Chicago*
Sample, Leo Emerson	*Greenville*
Schmid, Herbert C.	*Peoria*
Schulte, Norma Claire	*Chicago*
Seibert, Sumner Sigle	*Ashley*

Silberman, Isadore E.	*Chicago*
Skoglund, Herbert	*Chicago*
Sorenson, Adolph Waldo	*Rowley, Iowa*
Spagna, Ferdinand Adolph	*Chicago*
Spinner, Louis Charles	*Hillsboro*
Stanczak, Stanley Lucian	*Chicago*
Stotlar, Jo Spiller	*Herrin*
Stoner, Lloyd	*Rock Falls*
Stulik, Antoinette	*Chicago*
Sykora, Edward	*Chicago*
Taylor, Raymond Clide	*Antioch*
Thompson, Charles Samuel	*Du Quoin*
Tuma, Charles Paul	*Berwyn*
Walborn, Madge Orlean	*Chicago*
Weiss, Louis Ralston	*Chicago*
Whitney, Maxson Hall	*Wenona*

JUNIORS

Ackermann, Albert Gregory	*Chicago*
Africk, Abraham Mair	*Chicago*
Appel, David M.	*Chicago*
Arres, G. Richard	*Manteno*
Babcock, Fred Elmo	*Aledo*
Barker, Carl	*McLeansboro*
Barryete, Vivien Zerna	*Chicago*
Bennett, Neil	*Ogden, Utah*
Bexfield, Henry Nielsen	*Maywood*
Bobek, Edward Frank	*Chicago*
Bochner, Isadore	*Chicago*
Bogot, Isidor E.	*Maywood*
Bolen, Hallie Elsworth	*Anna*
Borucki, Alphonso W.	*Chicago*
Bradford, Raymond Allen	*Flora*
Choisser, Joseph Milton	*Eldorado*
Cochran, George Milton	*Little Rock, Arkansas*
Cohn, Matthew	*Chicago*
Croutch, Louis Raymond	*Chicago*
Crystal, George Orlean	*Chicago*
Crystal, Isidore Bernard	*Chicago*
Dougherty, Joseph Downey	*Ottawa*
Epstein, Casper Morris	*Chicago*
Felsher, William Maurice	*Chicago*
Fink, Rudolph John	*Chicago*
Frankowski, Matthew H.	*Whiting, Indiana*
Glatt, Milton Melvin	*Chicago*
Gleich, Clarence Philip	*Nokomis*
Goldberg, Sidney Kane	*Chicago*
Goldstein, Hilda	*Chicago*
Green, Clifford Earl	*Henry*
Gregg, Russell C.	*Morris*

Greenschlag, Herman David	*Chicago*
Hagler, Walter Raymond	*Alton Pass*
Haller, Anna Bee	*Forreston*
Havens, Charles Milton	*Marengo*
Hodel, Elmer Martin	*Freeport*
Hodel, Oscar Carl	*Freeport*
Hoelzel, Philip Henry	*Watertown, Wisconsin*
Hottoian, Vaughn	*Chicago*
Hout, Wesley Karl	*Lovington*
Humble, Frederick Carl	*Chicago*
Jabusch, Arthur Elmer	*Chicago*
Johnson, Barney S.	*Barron, Wisconsin*
Johnson, Carl Hearn	*Carbondale*
Jones, Rees D.	*Chicago*
Kappus, Julia Anna	*Elmhurst*
King, Oscar Vance	*Minonk*
Klawans, Paul Harold	*Chicago*
Klink, Irvin Peter	*Chicago*
Knutson, Carl Werner	*Chicago*
Kodera, James Charles	*Chicago*
Koelbel, Gerhardt Elmer	*Chicago*
Koontz, Victor Earl	*Mound City*
Krauczunas, John Julius	*Chicago Heights*
Kunka, Henry Edmund	*Chicago*
Kunka, Robert V.	*Chicago*
Lacy, Isom Lawrence	*Birmingham, Alabama*
Levy, Russell Damon	*Ottawa*
Lindhal, Fred Washington	*Waukegan*
Longman, Ivan	*Chicago*
Lorenz, Curtis Francis	*Highland*
Lubeck, Harry Aaron	*Maywood*
Lyckberg, Theodore Daniel	*Chicago*
McMahon, Vernon Thomas	*Waukegan*
McOmber, Frank Lewis	*DeKalb*
Martin, John S.	*Joliet*
Martino, John	*Cicero*
Meadows, Robert Clarence	*Mounds*
Meyer, Grant William	*Ottawa*
Mills, George Stallworth	*Shreveport, Louisiana*
Monroe, Louie	*Greenville*
Moss, Francis Charles	*Ottawa*
Oliva, David	*Chicago*
Parks, George Edwin	*Anna*
Pelck, Frederick Harold	*Rochelle*
Prihoda, John Frank	*Cicero*
Quong, Louis Sing	*Canton, China*
Rettke, Ralph C.	*Canton*
Roche, Gerald Carte	*Delavan*
Rosenblum, Rebecca	*Chicago*
Rulien, Elmer	*Joliet*

Sarosinsky, Thomas Lester	*Chicago*
Sauther, William Jennings Bryan	*Benton*
Sayre, Walter Louis	*Elgin*
Scott, James McKinley	*Pichens, Mississippi*
Searls, Lyle Headle	*Amboy*
Sims, Russell Porter	*Paris*
Sladky, Anton	*Chicago*
Smith, Gordon Alexander	*Homer*
Soldinger, David Charles	*Chicago*
Stahlberg, Roy Bernard	*Harrisburg*
Steinberg, Rose	*Chicago*
Stern, Lester Mervin	*Chicago*
Stoyanoff, Nicholas D.	*Granite City*
Sullivan, Eugene Patrick	*Chicago*
Swanson, Perle F.	*Paxton*
Tanner, Clarence H.	*Lewistown*
Thomas, Arthur Bruce	*Chicago*
Thomson, Samuel Clifton	*Pontiac*
Toy, Wing	*Chicago*
Turner, Darwin Romanes	*Chicago*
Tucker, Creed Aerial	*Champaign*
Tumas, John	*Chicago*
Walter, Casper	*East St. Louis*
Warczak, Frank Albert	*Chicago*
Watson, William Roy	*Evanston*
Webster, George Lewis	*Maquoketa, Iowa*
Wolfe, Cecil Dewey	*DuQuoin*
Zielinski, Adona	*Chicago*

SPECIAL STUDENTS

Second Year

Alex, Frank	*Chicago*
Dunn, Raymond Edward	*Decatur*
Funk, Herbert Emerson	*Chicago*
Glynn, Leo Kyrone	*Davenport, Iowa*
Janda, Joseph	*Chicago*
Maether, Carl A.	*Chicago*
Malinsky, George	*Chicago*
Martin, Raeburn LeRoy	*Ashley*
Petranek, Joseph Louis	*Kankakee*
Reinhard, Harold Alexis	*Mt. Carmel*
Wiertelak, Albert Peter	*Chicago*
Zimmermann, Henry Earl	*Tuscola*

First Year

Adler, Joseph Marcus	*Chicago*
Anderson, Stanley	*Chicago*
Baker, Jerome Walter	*Chicago*
Besser, Henry A.	*LaGrange*
Boua, Leon Thomas	*Chicago*

Brown, Glen L.	*Effingham*
Carrubba, John	*Chicago*
Czeck, Michael A.	*Argo*
Danapoulos, Constantine F.	*Chicago*
Graft, Roy Joseph	*Chicago*
Gronemeyer, Lawrence H.	*Quincy*
Hanes, Clyde Daniel	*Chicago*
Hatch, Irving G.	*Chicago*
Hedge, Richard LeWarn	*Danville*
Johnston, John Arthur	*Chicago*
Johnston, William Greer	*Chicago*
Lane, Robert John	*Chicago*
Law, George Boyd	*Savanna*
Morava, Harold Rudolph	*Chicago*
Oberman, Frank	*Springfield*
Plumery, Joseph Manuel	*Oak Park*
Rowland, Clarence LeRoy	*Davenport, Iowa*
Ruzicka, George Joseph	*Chicago*
Shuldes, Benjamin Joseph	*Berwyn*
Sklodowski, Helen Jenny	*Cicero*
Smith, Herman Philip	*LaMoille*
Sweeney, Thomas Gay	*Chicago*
Van Mater, Ford B.	*Freeport*
Weiss, Sidney	*Chicago*
Wiedman, Clem Joseph	*Effingham*
Willette, George	*Chicago*

INDEX

Admission 15
Advanced Standing 18
American Conference of Faculties.................................... 8
Announcement of the Session.................................... 12
Bacteriology, Courses in.................................... 21
Botany, Course in.................................... 19
Buildings, Description of.................................... 13
Calendar of the School Year.................................... 10
Chemistry, Courses in....................................19, 20
Course, Two-Year, for Ph.G.................................... 18
Course, Three-Year, for Ph.C.................................... 21
Degrees, 1921 28
Employment, Opportunities for.................................... 26
Entrance Examinations 17
Entrance Requirements 15
Entrance as a Special Student.................................... 17
Equipment, Description of.................................... 13
Faculty 9
Fees and Expenses.................................... 25
Graduation, Requirements for.................................... 18
History 11
Library 14
Loan Fund, Woman's.................................... 24
Materia Medica, Courses in.................................... 20
Microscopy, Course in.................................... 21
Pharmacognosy, Course in.................................... 20
Pharmacy, Courses in....................................19, 20
Physiology, Courses in.................................... 20
Prizes 24
Requirements for Entrance.................................... 15
Requirements for Graduation.................................... 18
Schedules of Class Hours.................................... 27
Scholarships 22, 23
Special Students, Admission as.................................... 17
Students, List of.................................... 29
Trustees and Officers.................................... 7
University of Illinois, Departments.................................... 1

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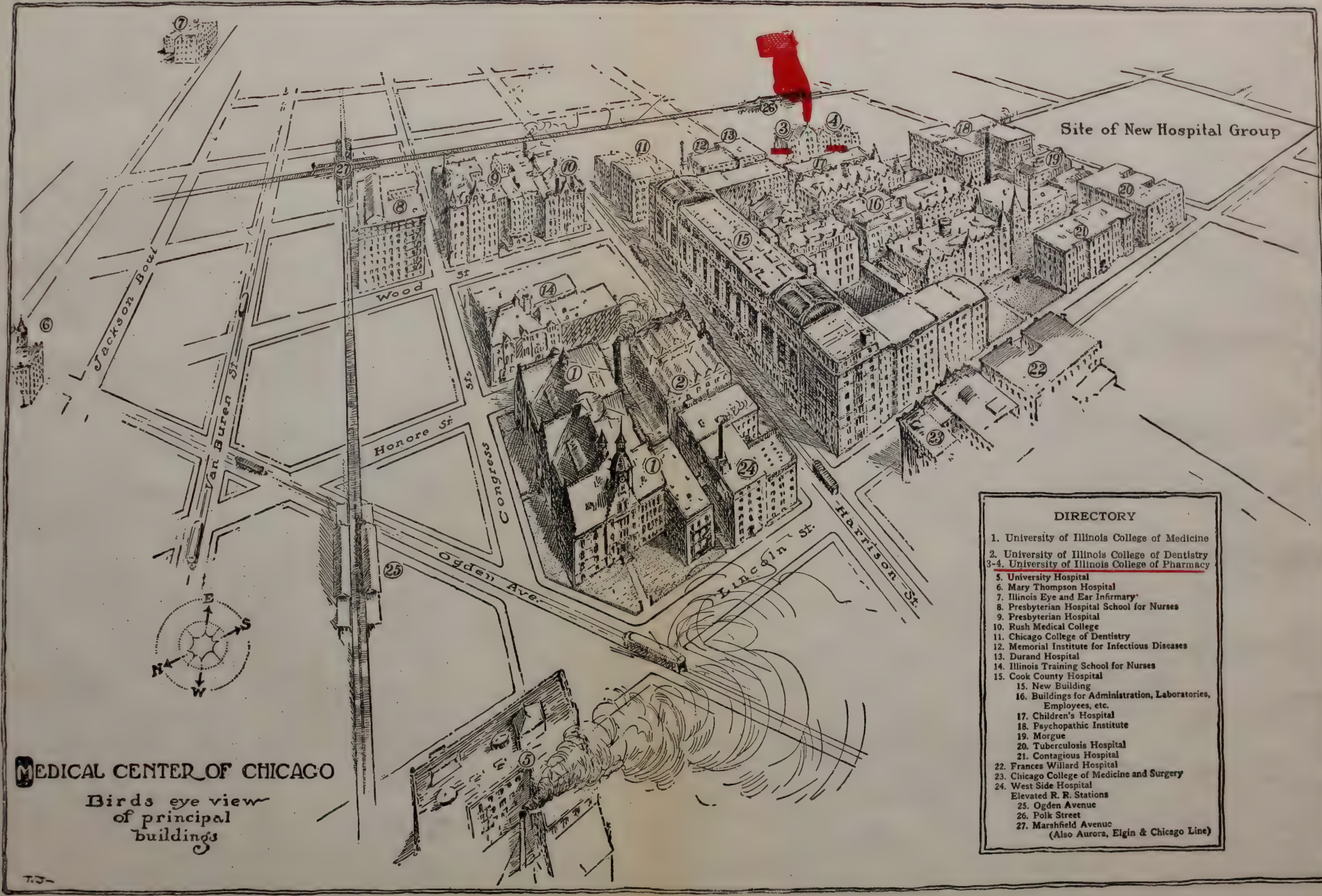
UNIVERSITY OF ILLINOIS

School of Pharmacy

1922-1923

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
CHICAGO



MEDICAL CENTER OF CHICAGO

Birds eye view of principal buildings

DIRECTORY

1. University of Illinois College of Medicine
2. University of Illinois College of Dentistry
3-4. University of Illinois College of Pharmacy
5. University Hospital
6. Mary Thompson Hospital
7. Illinois Eye and Ear Infirmary
8. Presbyterian Hospital School for Nurses
9. Presbyterian Hospital
10. Rush Medical College
11. Chicago College of Dentistry
12. Memorial Institute for Infectious Diseases
13. Durand Hospital
14. Illinois Training School for Nurses
15. Cook County Hospital
    15. New Building
    16. Buildings for Administration, Laboratories, Employees, etc.
    17. Children's Hospital
    18. Psychopathic Institute
    19. Morgue
    20. Tuberculosis Hospital
    21. Contagious Hospital
22. Frances Willard Hospital
23. Chicago College of Medicine and Surgery
24. West Side Hospital

Elevated R. R. Stations
    25. Ogden Avenue
    26. Polk Street
    27. Marshfield Avenue (Also Aurora, Elgin & Chicago Line)

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

URBANA

DAVID KINLEY, Ph.D., LL.D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics, Political Science, Sociology; Philosophy, Psychology; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Bacteriology, Zoology, Entomology; Physiology; Art and Design)

The College of Commerce and Business Administration (General Business, Banking, Insurance, Accountancy, Railway Administration, Foreign Commerce; Courses for Commercial Teachers and Commercial and Civic Secretaries)

The College of Engineering (Architecture; Architectural, Ceramic, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Farm Mechanics; Farm Organization and Management; Horticulture and Landscape Gardening; Agricultural Extention; Teachers' Course; Home Economics)

The College of Law (Three-year curriculum based on one year of college work)

The College of Education

The Curriculum in Journalism

The Curriculums in Chemistry and Chemical Engineering

The School of Railway Engineering and Administration

The School of Music (four-year curriculum)

The School of Library Science (two-year curriculum for college graduates)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. curriculums)

The Summer Session (eight weeks)

Experiment Stations and Scientific Bureaus: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; U. S. Bureau of Mines Experiment Station.

The library collections contain (April 1, 1922) 523,230 volumes and 120,151 pamphlets.

For catalogs and information address

THE REGISTRAR
Urbana, Illinois

THE UNIVERSITY OF ILLINOIS

COLLEGE OF DENTISTRY

1838 W. Harrison St., Chicago
Opposite the Cook County Hospital

Full course of instruction leading to the degree of Doctor of Dental Surgery. Four-year curriculum. Fifteen units from an accredited high school for admission, plus one year in an accredited college or university with the following prescriptions:

English	6 semester hours
Chemistry	6 semester hours
Biology or physics	6 semester hours
Electives	12 semester hours

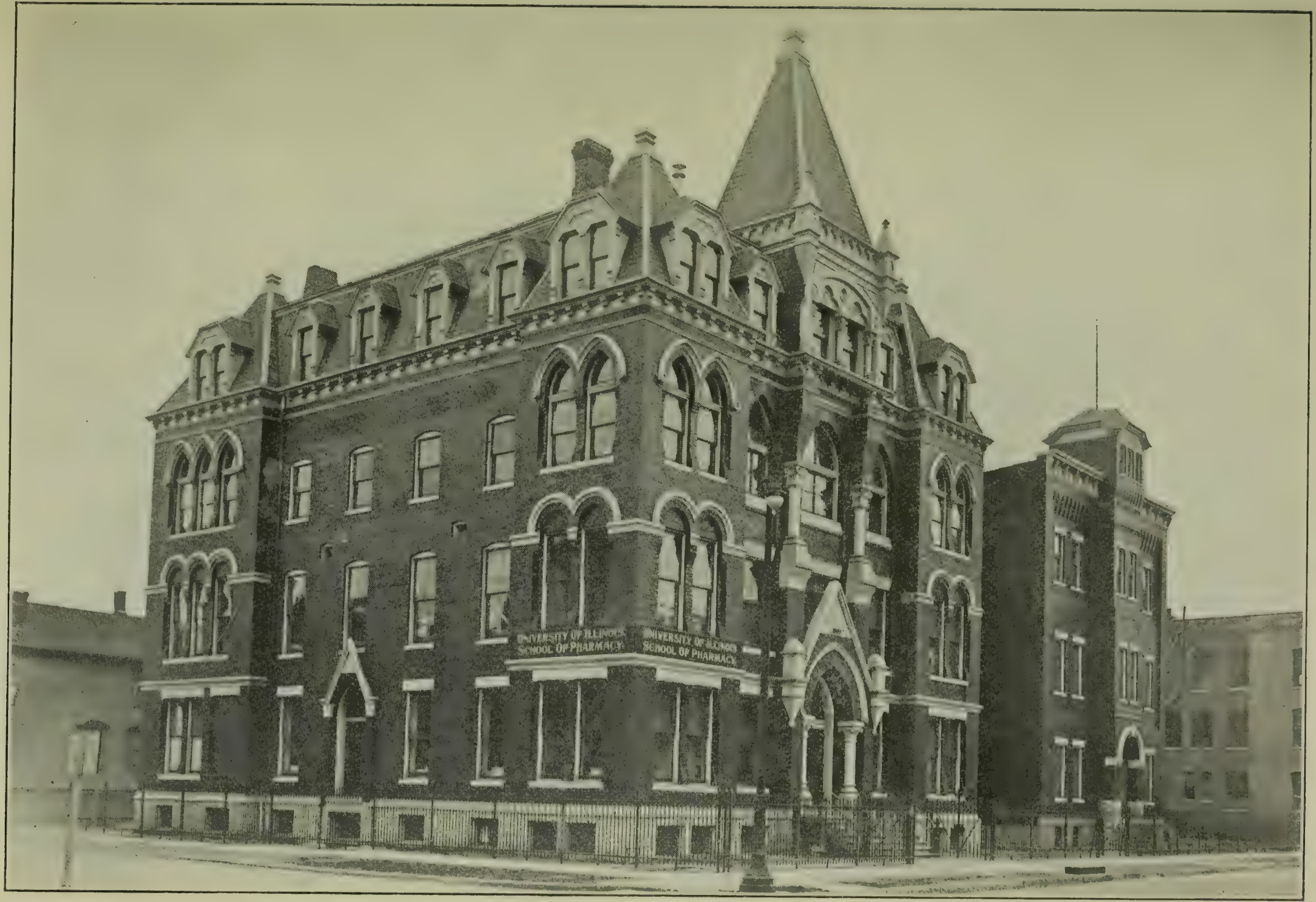
For further information address
The Secretary, College of Dentistry, University of Illinois
1838 W. Harrison St., Chicago, Ill.

UNIVERSITY OF ILLINOIS

COLLEGE OF MEDICINE

College term begins October 2, 1922. Entrance requirements: fifteen units of work from an accredited high school and two years' work in a recognized college or university, comprising not less than sixty semester hours, including prescribed subjects.

Superior clinical facilities. Five year curriculum (including one year of interne service in an approved hospital) leading up to the degree of Doctor of Medicine. Degree of Bachelor of Science conferred at the end of the second year in medicine in accordance with conditions set forth in catalog. For full information, address Secretary, College of Medicine, University of Illinois, 508 South Honore Street, Chicago.



THE PHARMACY BUILDINGS

Sixty-Third Annual Announcement

UNIVERSITY OF ILLINOIS
SCHOOL OF PHARMACY

(CHICAGO COLLEGE OF PHARMACY)

WOOD AND FLOURNOY STREETS
CHICAGO, ILLINOIS

CHARTERED 1867.

REGISTER FOR 1921-1922
SESSION OF 1922-1923

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
CHICAGO

INDEX

Admission 15
Advanced Standing 18
American Conference of Faculties 8
Announcement of the Session 12
Bacteriology, Courses in 21
Botany, Course in 19
Buildings, Description of 13
Calendar of the School Year 10
Chemistry, Courses in 19, 20
Course, Two-Year, for Ph.G. 18
Course, Three-Year, for Ph.C. 21
Degrees, 1922 28
Employment, Opportunities for 26
Entrance Examinations 17
Entrance Requirements 15
Equipment, Description of 13
Faculty 9
Fees and Expenses 25
Graduation, Requirements for 18
History 11
Library 14
Loan Fund, Woman's 24
Materia Medica, Courses in 20
Microscopy, Course in 21
Pharmacognosy, Courses in 20
Pharmacy, Courses in 19, 20
Physiology, Course in 20
Prizes 24
Requirements for Entrance 15
Requirements for Graduation 18
Schedules of Class Hours 27
Scholarships 22, 23
Special Students, Admission as 17
Students, List of 29
Trustees and Officers 7
University of Illinois, Departments 1

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1922/23

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This School holds membership in the American Conference of Pharmaceutical Faculties. The object of the conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the same must maintain certain minimum requirements for entrance and graduation. Through the influence of this conference higher standards of education have been adopted from time to time and the fact that several states by law or by Board of Pharmacy ruling recognize the standards of the conference is evidence of this influence.

FACULTY—1921-1922

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FRANK JAMES ZUCK, Ph.G., *Instructor in Pharmacy*

JAMES TOBIAS GROOT, B.S., *Lecturer on Physiology*

JOHN AUGUST DORJAHN, Ph.G., *Assistant in Pharmacy*

JOSEPHINE MARION DYNIEWICZ, Ph.C., *Assistant in Chemistry*

RALPH E. TERRY, Ph.G., *Assistant in Pharmacognosy*

CALENDAR—1922-1923

First Semester

1922

September 11-15—Monday-Friday—
Examinations for admission.

September 25-29—Monday-Friday—
Examination for removal of conditions.

October 2—Monday, 8 a. m.-5 p. m.—
Registration and payment of fees.

October 3—Tuesday, 9 a. m.—
Semester instruction begun.

November 29—Wednesday, 12 m.—
Thanksgiving recess begun.

December 4—Monday, 9 a. m.—
Instruction resumed.

December 22—Friday, 5 p. m.—
Holiday recess begun.

January 3—Wednesday, 9 a. m.—
Instruction resumed.

January 29-February 2—Monday-Friday—
Semester examinations.

Second Semester

1923

February 7—Wednesday, 8 a. m.-5 p. m.—
Registration and payment of fees.

February 8—Thursday, 9 a. m.
Semester instruction begun.

February 12—Monday—
Lincoln Day.

February 22—Thursday—
Washington Day.

March 29—Thursday, 5 p. m.—
Easter recess begun.

April 2—Monday, 9 a. m.—
Instruction resumed.

May 30—Wednesday—
Memorial Day.

May 28-June 8—Monday-Friday—
Examinations.

June 7—Thursday—
Alumni meeting.

June 9 Saturday, 10:30 a. m.—
Annual Commencement Chicago Professional Schools.

SCHOOL OF PHARMACY

HISTORY

The School of Pharmacy was originally the Chicago College of Pharmacy and was incorporated under that name September 5, 1859. Prior to that time there were but three schools of pharmacy in the country, and these were located in the Eastern states.

While the primary object of the institution was to provide instruction in the science and art of pharmacy, other functions were developed. Thus, a code of ethics was early adopted by the members; successful efforts were made to bring about better relations between pharmacists and physicians; the pioneer pharmaceutical library was established; and for eighteen years beginning with 1868 a monthly journal, *The Pharmacist*—the first of its kind in the West—was published.

In October, 1859, the first course of lectures was instituted, occupying three evenings a week for a period of six months. Of the first class, but two students were graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire of 1871 destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing a library and an outfit of apparatus, which became the nucleus of the present equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building. Laboratory courses in pharmacy, chemistry and botany were made obligatory.

The College was formally united with the University on May 1, 1896, and is now conducted as the technical School of Pharmacy of the University of Illinois. In the management of the School, the Trustees and officers of the University have the assistance of an Advisory Board of pharmacists elected by the registered pharmacists of the state, through the Illinois Pharmaceutical Association.

In 1904 the University secured for the use of the School of Pharmacy the building located at Michigan boulevard and Twelfth street, where the School remained for twelve years.

In December, 1915, the University purchased for the School the property located at the corner of Wood and Flournoy streets, comprising eight city lots with two large brick buildings. The new quarters were occupied in June, 1916.

On May 22, 1917, the School of Pharmacy of Northwestern University was taken over by the University of Illinois.

ANNOUNCEMENT

The sixty-second annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, October 3, 1922, at ten o'clock in the morning.

The course will continue thirty-four weeks. The graduating exercises will be held with the other Chicago departments of the University on Saturday, June 9, 1923.

This school offers to young men and young women the technical training necessary for the successful practice of pharmacy.

The demand for educated pharmacists is steadily increasing. This is due, in part, to the passage of Federal and State pure food and drug laws, which demand a higher degree of knowledge and skill, as well as greater care, from those who are entrusted with the responsible duties of preparing and dispensing medicines.

That the public is beginning to appreciate the importance of skilled and competent pharmaceutical service is shown by the progress of legislation increasing the educational requirements for those who desire to become pharmacists. In fourteen states a diploma from a recognized school of pharmacy must be presented by the candidate before he is admitted to the licensing examination.

As the demand for better education becomes apparent, salaries of drug clerks are increased.

Young men and women of character, who are industrious and honest, who have or will develop business ability, and who possess adequate pharmaceutical training are constantly sought. The demand for such young men will always far exceed the supply, and their prospects for success in pharmacy are better today than ever before.

While the young man may reasonably expect to obtain valuable business experience in the drug store, his scientific training and technical skill are best acquired in the school of pharmacy. Under the guidance of experienced teachers he is grounded in the sciences upon which the art of pharmacy is based, while the laboratories afford opportunity for acquiring the technical skill needed in identifying, preparing, testing, and dispensing drugs and medicines.

Along related lines of activity, many opportunities for specialization are offered. Graduates in pharmacy are frequently sought by manufacturing pharmacists or wholesale druggists as well as for hospitals or dispensaries. Pharmaceutical chemists find employment in food and drug laboratories, in commercial chemistry, or in teaching. Not a few graduates continue their studies in medicine.

The New Location

The new location is in the great medical center of Chicago and close to the dental and medical colleges of the University. It is removed from the noise of the business district, yet is convenient to various lines of transportation.

Two blocks east is the Polk Street Station of the Douglas Park division of the Metropolitan Elevated Railway. Two blocks north and two blocks west is the Ogden Avenue Station of the Garfield Park division of the same railroad. The Marshfield Avenue Station, where all the Metropolitan branches converge and the Elgin-Aurora Interurban stops, is within a half mile. The Harrison Street, Twelfth Street, and Ashland Avenue surface lines all pass within a short distance of the School.

The college property has a frontage of two hundred and one feet on Wood Street and one hundred and twenty-four feet on Flournoy Street.

THE COLLEGE BUILDINGS

The college buildings include two substantial brick structures, which are connected by a stair-tower building affording a corridor at each floor. Both have daylight from four sides and electric lights throughout, and are heated by steam.

The larger building, known as the College Building, is sixty by eighty feet square and four stories in height. It contains the offices, the library, the museum, the microscopical laboratory, the bacteriological laboratory, a large auditorium, two smaller lecture halls, several preparation rooms and private laboratories for the teachers, students' rooms, and locker rooms.

The smaller building, known as the Laboratory Building, is forty-four by eighty-eight feet square and three stories in height. It contains the pharmaceutical laboratory, the laboratory for commercial manufacturing, the laboratory for quantitive analysis, the laboratory for qualitive analysis, and several private laboratories for the teachers, as well as store rooms and supply rooms.

THE LECTURE HALLS

The third and fourth floors of the College Building are largely occupied by an auditorium, capable of seating two hundred and fifty persons. Preparation rooms for the teachers are immediately adjoining. On the second floor of the same building is a hall arranged in amphitheater form and with a seating capacity of one hundred and twenty. A smaller hall on the same floor is provided with school desks for ninety persons.

THE LABORATORIES

Five general laboratories for the large classes as well as several special laboratories are provided. The total capacity of the larger laboratories is about three hundred students working at one time. The laboratories are provided with gas, electricity, hot and cold water, distilled water, and compressed air.

THE PHARMACEUTICAL LABORATORY

The Pharmaceutical Laboratory occupies a room 32x51 feet in size, situated on the first floor of the Laboratory Building and having windows on three sides. Work-stands are provided for sixty-eight students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand, and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm condenser, mortars, metric weights, etc.

THE LABORATORY FOR COMMERCIAL MANUFACTURING

This laboratory, recently installed, is planned to afford practical experience to students in the handling and use of apparatus and machinery found in commercial work. Among the types are a porcelain-lined pebble mill, a pony mixer, an ointment mill, a drug mill, a pill coater, and a tablet machine. All are power driven. In addition there is a vacuum pan complete with condenser and electric pump, a rotary sifter and mixer, a large tincture press, five and ten gallon enameled iron percolators, a drying oven, sieves, and smaller pieces used in a pharmaceutical laboratory. Electricity, gas, hot and cold water, and compressed air are provided. The outfit is installed in a large light room with a concrete floor which can readily be flushed out.

The Laboratory for Pharmacognosy

The Laboratory for Pharmacognosy, 24x40 feet in size, is situated on the first floor of the College Building. Desks are provided for forty-eight students. Forty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the materia medica collection of six hundred samples of crude drugs.

The Bacteriological Laboratory

The Bacteriological Laboratory is situated on the fourth floor of the College Building and has accommodations for thirty-eight students. The equipment incudes microscopes with immersion objectives and Abbe condensers. Sterilizers, incubators, and the usual bacteriological equipment are provided

The Qualitative Laboratory

The Qualitative Laboratory is situated on the third floor of the Laboratory Building, is 44x33 feet in size, has light from three sides, is provided with work-stards for sixty-four students, and has twice this number of lock-drawers and lock-cupboards. Each work-stand is supplied with gas, water, acid-proof sink, and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common. Fume hoods, into which gas, compressed air and hydrogen sulphide are piped, are provided.

The Quantitative Laboratory

The Quantitative Laboratory is situated on the second floor of the Laboratory Building, is 33x44 feet in size, and has light from three sides. It is supplied with work-stands for classes of seventy-four students, each stand having a complete equipment. Connected with this laboratory is a smaller room provided with two electric ovens, a centrifuge, a Kjeldahl apparatus, and several drying ovens. Also a balance room equipped with fifteen analytical balances for class use.

The Library

The Library adjoins the office on the first floor of the College Building. It contains about four thousand volumes, including, in addition to the usual works of reference, a number of rare books, complete files of the leading pharmaceutical periodicals, and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference.

The Museum

The Museum occupies two large rooms on the third floor of the College Building. It is equipped with suitable cases for displaying specimens.

Apparatus, new and old, collections of chemical and pharmaceutical products, and files of prescriptions are included. Other features are illustrations of medicinal plants and an herbarium, which numbers several thousand specimens.

The Students' Room

A locker room for students is provided with 225 steel lockers for coats, hats, and books. A lounging room for the men and a rest room for women students are also provided.

ADMISSION

The requirements for admission to the School of Pharmacy of the University of Illinois are as follows:

1. HIGH SCHOOL GRADUATION

A candidate for admission *by certificate* must be a *graduate* of an accredited high school or other accredited school, with fifteen units* in acceptable subjects. By acceptable subjects are meant the subjects included in Lists A, B, and C below; not more than three units to be chosen from List C.

An applicant who *has not been graduated* from an accredited school must pass entrance examination in the following subjects, amounting to 5 units:

English composition	1 unit
Algebra	1 unit
Additional subjects to be designated by the University authorities	3 units
Total	5 units

The remaining 10 units necessary to make up the 15 units required for admission may also be made in entrance examinations or may be offered by certificate from an accredited school.

2. PRESCRIBED SUBJECTS

The fifteen units required must include the following subjects, which are *prescribed* for admission to all departments of the University of Illinois:

LIST A

English	3 units
Algebra	1 unit
Plane geometry	1 unit
Physics, or chemistry, or botany, or zoology, or physiology, or physiography, with laboratory work	1 unit
Total	6 units

3. ELECTIVES

The remaining 9 units must be selected from List B and C, which follow. *Not more than 3 units may be chosen from List C.*

LIST B		*Units*
Latin	36 to 144 weeks	1–4
Greek	36 to 108 weeks	1–3
French	36 to 144 weeks	1–4
German	36 to 144 weeks	1–4
Spanish	36 to 144 weeks	1–4
Italian	36 to 72 weeks	1–2

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*By a unit of high-school or academy work is meant a year's work in a single subject, it being understood that the school year shall not be less than 36 weeks in length, that classes shall recite 5 times a week, that the recitation period shall not be less than 40 minutes long, that in science subjects there shall be double periods twice a week, and that double time shall be given in subjects like drawing, manual training, and bookkeeping, in which little or no outside study is required. Since high-school students ordinarily take four subjects at a time throughout the four years of the high school course, 15 units represent approximately four years of high-school work.

		Units
Norwegian	36 to 72 weeks	1–2
Swedish	36 to 72 weeks	1–2
Polish	36 to 72 weeks	1–2
English (4th unit)	36 weeks	1
Advanced Algebra	18 or 36 weeks	½–1
Solid Geometry	18 weeks	½
Trigonometry	18 weeks	½
History[1]	36 to 144 weeks	1–4
Civics	18 or 36 weeks	½-1
Economics and economic history	18 or 36 weeks	½-1
Commercial geography	18 or 36 weeks	½-1
Astronomy	18 weeks	½
Geology	18 or 36 weeks	½-1
Physiography	18 or 36 weeks	½–1
Physiology	18 or 36 weeks	½-1
Zoology	18 or 36 weeks	½-1
Botany	18 or 36 weeks	½-1
Physics	36 to 72 weeks	1–2
Chemistry	36 to 72 weeks	1–2
General science	18 to 36 weeks	½-1

4. Additional Electives: List C

The remaining 3 units may be chosen either from List B above or from List C:

List C[2]		Units
Agriculture	36 to 108 weeks	1–3
Bookkeeping	36 weeks	1
Business law	18 weeks	½
Commercial arithmetic	18 weeks	½
Domestic science	36 to 108 weeks	1–3
Drawing, art and design	18 or 36 weeks	½-1
Drawing, mechanical	18 or 36 weeks	½-1
Manual training[3]	36 to 72 weeks	1–2
Music	36 to 72 weeks	1–2
Shorthand and typewriting[4]	36 to 72 weeks	1–2

How the Entrance Requirement May Be Met

The high-school requirement may be satisfied either by certificate or by examination.

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[1] Greek and Roman history, 1 unit; medieval and modern history, 1 unit; English history, ½ or 1 unit; American history, ½ or 1 unit.

[2] The subjects named in List C must be taught in accordance with specifications which are set forth in the High-School Manual. Further information may be had on application to the High-School Visitor.

[3] In giving credit for manual training the University specifies that the work is to be done by competent teachers, as determined by inspection, and that credit shall not exceed one unit for 360 forty-minute periods of work, including the necessary drawing and shop work.

[4] These two subjects must be offered together; no credit is given for either one offered separately.

HIGH-SCHOOL CREDITS BY CERTIFICATE

High-school credits will be accepted by certificate from the following sources.

1. From high schools and academies in the state of Illinois which are accredited to the University of Illinois.
2. From schools accredited by the North Central Association of Colleges and Secondary Schools.
3. From schools accredited to the state universities which are included in the membership of the North Central Association of Colleges and Secondary Schools, provided the certificate shows that the Illinois standard time requirements have been met.
4. From high schools and academies registered by the Regents of the University of the State of New York.
5. From schools approved by the New England College Entrance Certificate Board.
6. From schools accredited by the Southern Association of Colleges and Secondary Schools.
7. From the state normal schools of Illinois and other normal schools having equal requirements for graduation.

HIGH-SCHOOL CREDITS BY EXAMINATION

High-school credits may be made by examination:

1. In the examinations conducted by the Registrar of the University of Illinois at the University in Urbana in January, July, and September of each year.
2. In the examinations conducted by the Registrar of the University of Illinois at the College of Medicine in Chicago in September of each year. A program of these entrance examinations will be sent on request.
3. In the examinations conducted in June of each year by the College Entrance Examination Board.
4. In the examinations conducted by the Regents of the University of the State of New York.

ADMISSION ON PROBATION ON PRINCIPAL'S RECOMMENDATION

A student who has been graduated from an accredited school, whose high-school course includes fifteen units, six of which are made up from List A, but whose high-school credits do not completely meet the requirements with respect to the selection of electives from Lists B and C, may be admitted to the University *on trial* for one semester *on the special recommendation of his high-school principal;* with the proviso that he shall be dropped automatically at the end of the first semester if he fails in more than one-third of his work, and that if his grades in more than one-fourth of his work are below C he *may* be dropped on the recommendation of his college faculty. Such a student during his trial period is not permitted to take part in any public exhibition, or serve on the staff of any student publication, or hold or become a candidate for any undergraduate office.

NON-ILLINOIS STUDENTS

On and after September 1, 1922, all applicants for admission to the School of Pharmacy, if not legal residents of Illinois, must present with their applications for admission, except as unclassified students, satisfactory evidence that they maintained at the school or college from which they would enter the University of Illinois, a scholastic average at least ten per cent above the passing grade of such school or college. In case of records which are not kept in numerical grades but in literal or other systems of grading, this requirement will be interpreted to mean an average of one grade above the passing grade, e. g., in a system of A, B, C, and D, with D as the passing grade, the average must be C.

ADVANCED STANDING

The University will accept scholarship and time credits for work done in schools of pharmacy having standards equal to those of the School of Pharmacy of the University of Illinois, in so far as this work coincides with or is the full equivalent of the courses prescribed by the University.

The applicant must present a letter of honorable dismissal from, and be eligible for promotion in, the school in which he has pursued his pharmaceutical studies and must comply with the requirements for such promotion in the University of Illinois.

REQUIREMENTS FOR GRADUATION

The Degree of Graduate in Pharmacy

The candidate for the degree of Graduate in Pharmacy must be twenty-one years of age, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age will receive a certificate and will be awarded the diploma when this requirement is satisfied.

The Degree of Pharmaceutical Chemist

The candidate for the degree of Pharmaceutical Chemist must have successfully completed the course leading to the degree of Graduate in Pharmacy in this school or in some other recognized college or school of pharmacy whose requirements for admission and graduation are equivalent to ours. He must have satisfactorily completed the work of the third year at this school.

COURSES OF INSTRUCTION

THE TWO-YEAR COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of first-year students on three days each week; second year students on five days.

The system of teaching includes lectures, demonstrations, recitations, and written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

PHARMACY—FIRST YEAR

1. *Theoretical Pharmacy.*—Pharmacy in its historical, professional, and legal relations, metrology, and specific gravity; pharmaceutical arithmetic; conversion of avoirdupois and apothecaries' weights into metric equivalents and vice versa; drills in percentage and alligation as applied to pharmaceutical preparations, processes of operative pharmacy; use of apparatus, utensils, and devices employed in pharmaceutical practice; heat, its source and uses; solution, its phenomena, effects and causes; filtration, extraction, and their modifications. Three lectures and recitations each week. First semester.

2. *Galenical Pharmacy.*—Solutions and mixtures official in the United States Pharmacopoeia and National Formulary; methods of preparation and strengths; synonyms, common uses, and doses. Three lectures and recitations each week. First half, second semester.

3. *Pharmacy of the Inorganic Substances.*—The elements, inorganic compounds and preparations; pharmaceutical and technical uses; posology and therapeutic applications. Three lectures and recitations each week. Second half, second semester.

4. *Pharmaceutical Laboratory.*—Preparations illustrative of the various processes and operations outlined in Pharmacy 1. One laboratory period of three hours each week. First semester.

5. *Pharmaceutical Laboratory.*—Manufacture of the simpler preparations of the United States Pharmacopoeia and National Formulary. One laboratory period of three hours each week. Second semester.

6. *Dispensing.*—Preparation of the most important solutions and mixtures of the United States Pharmacopoeia and the National Formulary, intended for extemporaneous compounding in prescription form. One laboratory period of one hour each week. Second semester.

CHEMISTRY—FIRST YEAR

1. *Theoretical Chemistry.*—General principles of chemistry in connection with the non-metallic elements; nature of acids, bases, and salts from the standpoint of the modern theories of ionization and dissociation. Two lectures, one recitation each week. First semester.

2. *General Chemistry.*—A study of the metals, in which the theories and principles of chemistry learned in course 1 are applied. Two lectures, one recitation each week. Second semester.

3. *Qualitative Analysis.*—Identification of the various inorganic acid radicals and the more common metals; the examination of about thirty unknown mixtures; the special qualitative tests of the United States Pharmacopœia; examination of medicinal chemicals for identity and purity. One lecture and one laboratory period of two hours each week. First semester.

4. *Qualitative Analysis.*—A continuation of Chemistry 3. One lecture and one laboratory period of three hours each week. Second semester.

MATERIA MEDICA AND BOTANY—FIRST YEAR

1. *General Botany.*—A general course dealing chiefly with the flowering plants. Two lectures, one recitation and one laboratory period of one hour each week. First semester.

2. *Plant Histology.*—The microscopic structure of plants; the technic of the microscope; the operations of lighting, focusing, drawing, measuring, cut-

ting, mounting objects; the application of micro-chemical tests, staining, etc. One laboratory period of two hours each week. First semester.

3. *Plant Histology.*—A continuation of Botany 2. One laboratory period of two hours each week. Second semester.

4. *Physiology and Hygiene.*—A general course with instruction in caring for emergency cases. Two lectures and one recitation each week. First semester.

5. *Materia Medica.*—General principles of materia medica; classification of medicines based on therapeutic action; incompatible drugs, posology and toxicology. Two lectures, and one recitation, each week. Second semester.

6. *Pharmacognosy.*—A laboratory study of crude drugs including their recognition, description and characteristic features. The drugs derived from the cryptograms, the gymnosperms and the monocotyledons. One hour recitation and one hour laboratory each week. Second semester.

Pharmacy—Second Year

7. *Galenical Pharmacy.*—A continuation of Pharmacy 2. Infusions, decoctions, tinctures, fluid extracts and resins. Preparations for internal use; powders, masses, pills, confections, troches, capsules, cachets, and tablets. Preparations for external use: ointments, cerates, suppositories, and plasters. Three lectures and recitations each week. First semester.

8. *Organic Substances.*—Preparation, purification, identity, purity, and strength, pharmaceutical preparations, medicinal uses, and doses. Three lectures and recitations each week. Second semester.

9. *Pharmaceutical Laboratory.*—Preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy. One laboratory period of four hours each week. Both semesters.

10. *Dispensing.*—Preparation of mixtures adapted to extemporaneous compounding. Typical prescriptions, methods for the prevention or modification of incompatibilities. Drills in prescription reading, Latinity and abbreviations, foreign synonyms, directions, and posology. One lecture or recitation and one laboratory period of two hours each week. Both semesters.

Chemistry—Second Year

5. *Organic Chemistry.*—A systematic course in the study of the carbon compounds. Simple hydrocarbons and their derivatives; alcohols, ethers, aldehydes, acids, esters, and carbohydrates. Two lectures and one recitation each week. First semester.

6. *Organic Chemistry.*—Aromatic hydrocarbons and their derivatives; synthetic remedies and alkaloids. Two lectures, one recitation each week. Second semester.

7. *Elementary Quantitative Analysis.*—Typical examples of gravimetric analysis as applied to the determination of the purity and strength of medicinal substances. Two lectures or recitations and two laboratory periods of three hours each week. First semester.

8. *Quantitative Analysis.*—Volumetric processes of the United States Pharmacopœia. Analysis of organic substances and alkaloids. Two lectures or recitations and two laboratory periods of three hours each week. Second semester.

Materia Medica—Second Year

7. *Materia Medica.*—Plant drugs in botanic sequence; animal drugs; titles, synonyms, collections, preservation, standardization, therapeutic use, dose, and preparations. Two lectures and one recitation each week. Both semesters.

8. *Pharmacognosy.*—A laboratory study, a continuation of Pharmacognosy 6. Drugs derived from the dicotyledons, and including in addition thereto methods employed for detection of adulterations in powdered drugs. One laboratory period of three hours and one recitation each week. One and one-half semesters.

8. *Bacteriology.*—Characteristics of bacteria; morphology, structure, and classification; chemical composition, vital phenomena, and chemical effects. Relation of bacteria to disease; theories of infection and immunity; ferments, ptomaines, toxins and anti-toxins. Action of antiseptics, disinfectants, and bactericidal substances. Preparation of culture media and staining solutions; methods of cleaning and sterilizing glassware; methods of making plate cultures and colonies; technic of cover-glass slips. One lecture or recitation and three laboratory periods of three hours each week. Two-thirds semester.

THE THREE-YEAR COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy, and bacteriology, or to prepare themselves for positions in food and drug laboratories, the School offers a three-year course leading to the degree of Pharmaceutical Chemist. This course comprises three annual sessions of thirty-four weeks each, the first two years being identical with the course for the degree of Graduate in Pharmacy. The third year consists largely of laboratory practise.

Chemistry—Third Year

9. *Organic Chemistry.*—Organic methods. Qualitative detection of elements. Synthesis of typical compounds. One lecture or recitation and two laboratory periods of three hours each week. First semester.

10. *Advanced Quantitative Analysis.*—A continuation of Chemistry 7. Uranalysis is included. One lecture or recitation and two laboratory periods of three hours each week. First semester.

11. *Food Analysis.*—Alcohols, carbohydrates, oils, fats, flavors, colors, preservatives. One lecture or recitation and two laboratory periods of four hours each week. Second semester.

12. *Alkaloids.*—Alkaloidal assay methods of the United States Pharmacopœia together with a general survey of the constitution and behavior of alkaloids. One lecture or recitation and two laboratory periods of three hours each week. Second semester.

Microscopy—Third Year

1. *Applied Microscopy.*—A study of important powdered drugs and spices, with their substitutes and adulterants; practise in technical methods employed in their examination; micrometry, use of the micropolariscope, application of special reagents, etc.; the microscopic examination and identification of hairs, fibers, and textiles, urinary sediments, blood, pus, tubecasts, and crystalline substances. One lecture or recitation and two laboratory periods of three hours each week. First semester.

Bacteriology—Third Year

1. *Bacteriology.*—A course in sanitary bacteriology, and the mycology and bacteriology of foods and drugs. Causal relation of microorganisms to disease; methods of determining the bacteria of milk and water; valuation of

disinfectants; the methods of sterilization and diagnosis by means of bacterial cultures. Two hours of lectures and recitations, seven hours of laboratory each week. Second half, second semester.

PHARMACY—THIRD YEAR

11. *Operative Pharmacy.*—Determination of physical constants. Manufacture of preparations of the United States Pharmacopœia and National Formulary; application of tests for purity and identity; extra-official preparations employed in this country and abroad. One lecture or recitation and three laboratory periods of three hours each week. First semester.

12. *Manufacturing Pharmacy.*—Preparation of potent tinctures, fluidextracts, resins, alkaloids, and other active principles; application of commercial assay processes. One lecture or recitation and three laboratory periods of three hours each week. First, half, second semester.

13. *Manufacturing Pharmacy.*—Commercial and industrial methods for the manufacture of pills, tablets, ointments, effervescent salts, extracts, and dermatological preparations. An opportunity is afforded the student to use commercial labor-saving machinery. Manufacture and testing of organic preparations. One lecture or recitation and three laboratory periods of three hours each week. Second half, second semester.

GENERAL INFORMATION

COUNTY SCHOLARSHIPS

A law passed by the General Assembly of the State of Illinois at the session of 1905 and embodied in the General School Law of 1909 provides that one scholarship may be awarded annually to each county of the State. The holder thereof must be at least sixteen years of age, and a resident of the county to which he is accredited. No student who has attended the University of Illinois is eligible for appointment to a county scholarship. The holder of a county scholarship who registers in the School of Pharmacy is relieved of payment of the matriculation, registration, and tuition fees, but must make the laboratory deposits ($15.00 each year), pay the laboratory fees of $15.00 for each semester and pay the diploma fee of $10.00 at graduation.

Competitive examinations for these scholarships are held under the direction of the President of the University, and on such branches of study as the President may select, on the first Saturday in June of each year, at the county court house in each county by the County Superintendent of Schools. Questions for the examinations are furnished in advance to the County Superintendents.

The successful candidates in the examinations must then meet in full, either by certificate from an accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class, and must register the following September.

In case the scholarship in any county is not claimed by a resident of that county, the President of the University may fill the same by assigning to that county from some other county the student found to possess the next highest qualifications.

A student holding a scholarship who makes it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray expenses while in attendance, may, in the discretion of the President, be granted such leave of absence, and may be allowed an extension of his scholarship for not more than two years, making not more than six years in all from the beginning of the scholarship. Such extension will not be granted unless the student has been in attendance at the University for at least one full semester, nor unless the student's average grade during the period of his attendance has been at least 75, exclusive of grades in military science and physical education.

GENERAL ASSEMBLY SCHOLARSHIPS

The same act by which the county scholarships described above were established also provides that each member of the General Assembly may nominate annually one eligible person from his district for a scholarship in the University, granting the same privilege as the county scholarships.

A member of the General Assembly who wishes to nominate a candidate for a scholarship should file the name and address of his nominee as early in the spring as practicable and not later than June 1, with the President of the University.

The nominee, if a graduate of a school accredited by the University, is awarded the scholarship without examination and is admitted to the University on the same conditions as to educational qualifications as are graduates of such accredited high schools not so appointed to scholarships. If any such candidate is not a graduate of high school accredited by the University, he must present himself for examination under the County Superintendent in accordance with the rules established for competitors for the county scholarships. In this case the nominee must further (1) meet in full, either by certificate from accredited high school or by passing entrance examinations at the University, the requirements for admission to the freshman class; and (2) must register in the University the following September.

A General Assembly scholarship may be extended under the same conditions as a county scholarship.

MILITARY SCHOLARSHIPS

An amendment to the same Act by which the County and General Assembly scholarships were established also provides that any person who served in the army, navy or marine corps of the United States, not including members of the Students' Army Training Corps during the World War, who, at the time of entering upon such service, was a resident of this state, and who has been honorably discharged from such service, and who shall possess all necessary entrance requirements shall, upon application and proper proof, be awarded a University of Illinois scholarship.

Any person who served as above stated, and who at the time of entering upon such service, was a student at the University of Illinois, and who was honorably discharged from such service, shall, upon application and proper proof, be entitled to finish and complete his course of study at the University of Illinois without tuition and matriculation charges, but such person shall not be entitled to more than four years of gratuitous instruction.

In the School of Pharmacy, holders of military scholarships pay the same fees and deposits as holders of County and General Assembly scholarships, namely, $15.00 each year, as a laboratory deposit; $15.00 for each semester of each year laboratory fees and $10.00 diploma fee at graduation.

It is provided, however, that these scholarships shall not apply to persons who were convicted by court martial of disobedience of orders, where such disobedience consisted of the refusal to perform military service on the ground of alleged religious or conscientious objections against war.

Qualifications of Candidates

To be eligible for appointment to a Military Scholarship, a Candidate must establish the following facts:

(1) That he served in the army, the navy, or the marine corps of the United States, exclusive of the Students' Army Training Corps, during the World War.

(2) That he was honorably discharged from such service.

(3) That he was not convicted by court-martial of disobedience of orders, consisting in the refusal to perform military service "on the ground of alleged religious or conscientious objections against war."

(4) That at the time of entering upon his service he was a resident of the State of Illinois or a student in the University of Illinois.

(5) That he possesses "all necessary entrance requirements"; i. e., that he can meet in full the requirements for matriculation in the college or curriculum which he proposes to enter.

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild of New York City offers a scholarship, annually, amounting to three hundred dollars, to high-school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have completed a four-year high-school course and must have successfully finished their first year's work in a school of pharmacy holding membership in the American Conference of Pharmaceutical Faculties. The award will be made by competitive examination. Not more than two candidates may be offered from any one school.

WOMAN'S LOAN FUND

In may, 1917, the Woman's Organization of the Chicago Retail Druggists' Association gave to the University the sum of $115.00, to be used in establishing a loan fund in the School of Pharmacy. In June, 1921 the Organization added $116.00 to this fund. With accumulated interest the amount now available is $242.34. This fund is to be lent to one or two deserving students, men or women, perferably from Illinois, who are enrolled in the School. The loan is made upon the recommendation of the Dean and is to be repaid within three years for a junior student and within two years for a senior student, dating from the ensuing thirtieth of June. A note of hand bearing five per cent interest from the time the recipient leaves school is taken for the amount.

HONORS AND PRIZES

Pharmacy Prize.—Mr. Andrew Scherer, an alumnus of the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

Chemistry Prize.—Mr. Leo L. Mrazek, an alumnus or the School, offers a prize of twenty-five dollars in gold to the senior student who attains the highest average in chemisty.

American Pharmaceutical Association Memberships.—Three such memberships are offered as prizes by members of the faculty: One is awarded for excellence in practical pharmacy, the second for excellence in chemistry, the third for excellence in pharmacognosy.

Mr. William Gray offers a membership in the American Pharmaceutical Association as a prize for excellence in dispensing.

FEES AND EXPENSES

Illinois Students

	Course for Graduate in Pharmacy				Course for Pharmaceutical Chemist	
	First Year		*Second Year*		*Third Year*	
	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester
Matriculation*	$10.00	.....	.....	.....	.....	.....
Tuition	47.50	47.50	47.50	47.50	47.50	47.50
Laboratory fee†	15.00	15.00	15.00	15.00	15.00	15.00
Laboratory deposit†	15.00	.....	15.00	.....	15.00	.....
Diploma	.....	.....	.....	10.00	.....	10.00
	$87.50	$62.50	$77.50	$72.50	$77.50	$72.50

NON-ILLINOIS STUDENTS

Non-Illinois students pay fees as indicated above except that the tuition fee is $60.00 each semester.

ADDITIONAL FEES

Duplicate diploma, $10.00. **Original transcript of record, $1.00; for each carbon copy of same, 50 cents.

Payment of Fees.—All fees are payable in advance during the registration days of each semester. Exceptions to this rule will be made only with the approval of the proper administrative officer. Special students pay no matriculation nor diploma fees.

Rebates of Fees.—In case a student withdraws from the school within ten days after the beginning of the instruction the total amount of his fees except the matriculation fee will be refunded. After ten days and before the expiration of one month a refund of three-fourths of the tuition and laboratory fees will be made. After one month and before the expiration of two months a refund of one-half of these fees will be made. After two months and before the expiration of three months a refund of one-fourth of the fees will be made. After the expiration of three months no part of the fees paid will be refunded.

Board and Lodging.—The expense of board and room together is from $10 to $15 a week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the School. Information regarding these will be supplied by the Y. M. C. A. secretary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be made readily and quickly.

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*Not required in the case of students who have previously matriculated in any other college of the University of Illinois.

†The laboratory fee covers all drugs, chemicals and other material consumed by the student in the laboratories. The laboratory deposit covers breakage or damage to apparatus furnished by the school. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, also a locker fee of $1 if the student uses a locker in the coatroom.

**Each student is entitled to one transcript of record, without a fee, but he must pay for extras in the way of carbons supplied with the original transcript or for second request for original.

Books.—The expense of books is moderate. About forty-five dollars will purchase all the books required for the Ph.G. course. For the Ph.C. course the expenditure for books will be somewhat more.

OPPORTUNITIES FOR EMPLOYMENT

The arrangement of the hours in the first year of the course is such as to permit students who so desire to serve a part of their time in drug stores, thereby defraying a part of their personal expenses, but students are cautioned against attempting too much outside employment.

A register of students desiring employment and of pharmacists wishing to employ students is kept at the School. Students desiring employment are invited to correspond with the School.

CHICAGO BRANCH OF THE A. PH. A.

The Chicago Branch of the American Pharmaceutical Association composed of representative pharmacists of Chicago and vicinity has its headquarters at the School of Pharmacy. Meetings for the discussion of subjects of pharmaceutical interest are held monthly during the session. Students of pharmacy are eligible to membership or may attend these meetings without becoming members and without expense.

STATE REGISTRATION

To register as a pharmacist in Illinois one must either pass the examination given by the Illinois State Department of Education and Registration, or register by reciprocity with another state. Illinois reciprocates with forty-three states on the basis of presentation of a diploma from a recognized school of pharmacy and registration by examination in any one of these states.

The diploma of this School is accepted in all states where graduation prerequisite laws are in force, as admitting to the licensing examination.

The amendments to the Illinois Pharmacy law in effect July 1, 1917, require that a candidate for the certificate of registered pharmacist be of the age of twenty-one years or over, of good moral character and temperate habits, a graduate from a school of pharmacy recognized by the State Department of Registration and Education, and who has had four years experience in pharmacy. Actual time of attendance at a recognized school of pharmacy, but not to exceed two years, will be allowed on the four years experience required by law. The remainder of the experience must have been in compounding and dispensing drugs, medicines, and poisons under the supervision of a registered pharmacist in a drug store or pharmacy where the prescriptions of medical practitioners are compounded. Exemption from the graduation requirement is provided for such registered apprentices and assistant pharmacists who were registered by the Board of Pharmacy prior to July 1, 1917.

For further information or for a matriculation blank, address

701 South Wood St., Chicago, Ill. W. B. Day, *Dean.*

UNIVERSITY OF ILLINOIS
PROVISIONAL SCHEDULE—FIRST YEAR
FIRST SEMESTER

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
9 to 10 a. m. Section A Chemistry Section B Physiology Recitation	9 to 12 a. m. Extra Sections I, II and III Microscopical Laboratory	9 to 10 a. m. Section A Pharmacy Recitation Section B Botany Recitation	9 to 10 a. m. Section A Botany Recitation Section B Pharmacy Recitation
10 to 11 a. m. Pharmacy Lecture		10 to 11 a. m. Chemistry Section A 205 Section B 203	10 to 11 a. m. Chemistry Section A 203 Section B 205
11 a. m. to 12 m. Physiology Recitation Section A Chemistry Section B		11 a. m. to 12 m. Botany Lecture	11 a. m. to 12 m. Pharmacy Lecture
1 to 2 p. m. Botany Lecture		1 to 2 p. m. Physiology Lecture	1 to 2 p. m. Physiology Lecture
2 to 5 p. m. Section I Chemical Laboratory Section II Pharmaceutical Laboratory Section III Microscopical Laboratory		2 to 5 p. m. Section II Chemical Laboratory Section III Pharmaceutical Laboratory Section I Microscopical Laboratory	2 to 5 p. m. Section III Chemical Laboratory Section I Pharmaceutical Laboratory Section II Microscopical Laboratory

PROVISIONAL SCHEDULE—SECOND YEAR
FIRST SEMESTER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 a. m. to 12 m. Pharmacognosy Laboratory and Bacteriology By Sections	9 to 10 a. m. Chemistry Recitation	9 a. m. to 12 m. Pharmacognosy and Bacteriology Laboratory by Sections	9 to 10 a. m. Pharmacy Recitation	9 a. m. to 12 m. Bacteriology Laboratory By Sections
1 to 2 p. m. Chemistry Lecture	10 to 11 a. m. Pharmacy Lecture		10 to 11 a. m. Chemistry Lecture	11 a. m. to 12 m. Pharmacognosy Written Quiz By Sections
2 to 3 p. m. Materia Medica Recitation	11 a. m. to 12 m. Materia Medica Lecture	1 to 2 p. m. Chemistry Lecture	11 a. m. to 12 m. Materia Medica Lecture	
3 to 4 p. m. Bacteriology recitation	1 to 4 p. m. Dispensing Laboratory	2 to 5 p. m. Chemistry Laboratory	1 to 2 p. m. Pharmacy Lecture	1 to 2 p. m. Chemistry Lecture
			2 to 5 p. m. Pharmacy Laboratory	2 to 5 p. m. Chemistry Laboratory

PROVISIONAL SCHEDULE—THIRD YEAR—(Ph. C. Course)
FIRST SEMESTER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Pharmacy	9 a. m. to 12 m. Chemistry	9 a. m. to 12 m. Microscopy	9 a. m. to 12 m. Pharmacy
1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Chemistry	1 to 5 p. m. Microscopy	1 to 5 p. m. Pharmacy

DEGREES, 1922

DEGREE OF GRADUATE IN PHARMACY

David M. Appel
Carl Barker
Isidor Bochner
Alphonso William Borucki
George Milton Cochran
Matthew Cohn
George Orlean Crystal
Isidore Bernard Crystal
Joseph Downey Dougherty
Matthew Henry Frankowski
Clarence Philip Gleich
Anna Bee Haller
Charles Milton Havens
Elmer Martin Hodel
Barney S. Johnson
Carl Hearn Johnson
Rees David Jones
Victor Earl Koontz
John Julius Krauczunas
Henry Edmund Kunka
Russell Damon Levy
Robert V. Kunka
Curtis Francis Lorenz
Frank Lewis McOmber
Philip Mendelsohn
Francis Charles Moss
George Edwin Parks
John Frank Prihoda
Louis Sing Quong
Elmer Nelson Rulien
James McKinley Scott
Anton Sladky
Roy Bernard Stahlberg
Nicholas Dimetroff Stoyanoff
Eugene Patrick Sullivan
Arthur Bruce Thomas
Samuel Clifton Thomson
Wing Toy
John Tumas
Darwin Romanes Turner
George Lewis Webster
Cecil Dewey Wolfe
Edward F. Antonides (Class of '21)
Isadore Erwin Silberman (Class of '21)
Madge Orlene Walborn (Class of '21)

CERTIFICATES

Abraham Mair Africk
Oscar Carl Hodel
Carl Warner Knutson
Fred Washington Lindahl
Robert Clarence Meadows

HONORS—SENIOR CLASS

Abraham M. Africk—The Andrew Scherer Prize.
George L. Webster—The Leo L. Mrazek Prize.
George L. Webster—The Wm. Gray Membership A. Ph. A.
Darwin R. Turner—A. Ph. A. Membership in Chemistry.
Clarence P. Gleich—A. Ph. A. Membership in Pharmacy.
Anna Bee Haller—A. Ph. A. Membership in Materia Medica.

LIST OF STUDENTS—1921-1922

COURSE FOR GRADUATE IN PHARMACY

SENIORS

Africk, Abraham Mair	*Chicago*
Appel, David M.	*Chicago*
Babcock, Fred Elmo	*Aledo*
Barker, Carl	*McLeansboro*
Bochner, Isidor	*Chicago*
Borucki, Alphonso William	*Chicago*
Cochran, George Milton	*Little Rock, Arkansas*
Cohn, Matthew	*Chicago*
Crystal, George Orlean	*Chicago*
Crystal, Isidore Bernard	*Chicago*
Dougherty, Joseph Downey	*Ottawa*
Frankowski, Matthew Henry	*Whiting, Indiana*
Gleich, Clarence Philip	*Nokomis*
Haller, Anna Bee	*Forreston*
Havens, Charles Milton	*Marengo*
Hodel, Elmer Martin	*Freeport*
Hodel, Oscar Carl	*Freeport*
Johnson, Carl Hearn	*Carbondale*
Johnson, Barney S.	*Barron, Wisconsin*
Jones, Rees David	*Chicago*
Klink, Irvin Peter	*Chicago*
Knutson, Carl Werner	*Chicago*
Kodera, James Charles	*Chicago*
Koontz, Victor Earl	*Mound City*
Krauczunas, John Julius	*Chicago*
Kunka, Henry Edmund	*Chicago*
Kunka, Robert V.	*Chicago*
Lacy, Isom Lawrence	*Birmingham, Alabama*
Levy, Russell Damon	*Ottawa*
Lindahl, Fred Washington	*Waukegan*
Lorenz, Curtis Francis	*Highland*
McOmber, Frank Lewis	*Highland Park*
Meadows, Robert Clarence	*Mounds*
Mendelsohn, Philip	*Chicago*
Moss, Francis Charles	*Joliet*
Parks, George Edwin	*Anna*
Pelck, Frederick Harold	*Rochelle*
Prihoda, John Frank	*Cicero*
Quong, Louis Sing	*Canton, China*
Roche, Gerald Carte	*Delavan*
Rulien, Elmer	*Chicago*
Scott, James McKinley	*Pichens, Mississippi*
Sladky, Anton	*Chicago*
Stahlberg, Roy Bernard	*Harrisburg*
Stern, Lester Merwin	*Chicago*

Stoyanoff, Nicholas Dimetroff	*Granite City*
Sullivan, Eugene Patrick	*Chicago*
Tanner, Clarence	*Lewistown*
Thomas, Arthur Bruce	*Chicago*
Thomson, Samuel Clifton	*Pontiac*
Toy, Wing	*Chicago*
Tumas, John	*Chicago*
Turner, Darwin Romanes	*Chicago*
Warczak, Frank Albert	*Chicago*
Webster, George Lewis	*Maquoketa, Iowa*
Wolfe, Cecil Dewey	*DuQuoin*

JUNIORS

Alderman, Abe Meyer	*Chicago*
Alexander, William Wayland	*Carlinville*
Alpern, William Hyman	*Bay City, Michigan*
Alphran, Richard Burt	*St. Louis, Missouri*
Anderson, Carl Eli	*Chicago*
Anderson, Horace Griffin	*Chicago*
Armstrong, Garrett Holden	*El Paso*
Armstrong, Oswald Herbert	*Evanston*
Arres, G. Richard	*Manteno*
Babler, Clarence	*Monticello, Wisconsin*
Bamberg, John Jacob	*Chicago*
Becker, Bernard	*Chicago*
Bennett, Neil	*Ogden, Utah*
Berman, Charles	*Chicago*
Berman, Harry	*Chicago*
Berman, Jacob	*Chicago*
Brethauer, Homer John	*Nashville*
Brummer, Irving Max	*Blue Island*
Bryant, William Cullen	*Gibson City*
Buchanan, Clarence McKendree	*Palestine*
Burger, Francis Louis	*Elgin*
Burns, Ocie Romey	*Chicago*
Butler, Mrs. Geraldine Paola	*Chicago*
Carpenter, Paul David	*Elgin*
Carson, William Douglas	*Chicago*
Choisser, Joseph Milton	*Eldorado*
Choisser, Joseph Wesley	*Eldorado*
Cline, Joseph Lester	*Whitehall, Montana*
Cohen, George Perry	*Chicago*
Cremerius, David Walter	*Chicago*
Crodan, Lawrence LeRoy	*Lake Geneva, Wisconsin*
Dalsey, David	*Chicago*
Dalsey, Sidney	*Chicago*
Davis, Jackson Calhoun	*Birmingham, Alabama*
DeLany, Martin Rush	*Chicago*
Derevny, Joseph	*Chicago*
Dewasme, Paul	*Roanoke*

Diamondstein, Mrs. Pauline	*Hammond, Indiana*
Dillow, Forrest	*Anna*
Dombrowski, Harry Edward	*Chicago*
Drenning, Eugene James	*Joliet*
Eastabrooks, John James	*Hinckley*
Eaton, Olyn Edward	*DuQuoin*
Edelstein, Paul B.	*Chicago*
Evangelista, Joseph Anthony	*Chicago*
Feagler, Ralph Lawton	*Auburn, Indiana*
Feather, Fred Campbell	*Galesburg*
Fern, Herbert Lawrence	*Vienna*
Fink, Rudolph John	*Chicago*
Fleming, Rex	*West Lebanon, Indiana*
Freitag, Clarence Wilbert	*Monticello, Wisconsin*
Friedman, Jacob Israel	*Chicago*
Fry, Eugene Arthur	*Chicago*
Gaensslen, Julia Adelheit	*Green River, Wyoming*
Gassel, Sam	*Chicago*
Gearin, Elmer Franklin	*St. Louis, Missouri*
Giese, Stanley Edwin	*Chicago*
Gilmore, Roscoe William	*Mattoon*
Glass, Isaac Merle	*Springfield*
Glatt, Milton Melvin	*Chicago*
Glickman, Michael	*Chicago*
Goldsmith, Bernard Gustave	*Chicago*
Goldstein, Hilda	*Chicago*
Goldstein, David	*Chicago*
Goldstone, Hiram Howard	*Chicago*
Gorski, Stanislaus J.	*Chicago*
Grandison, Charles	*Chicago*
Gregg, Paul Jennings	*Carbondale*
Haffner, John Henry	*Bloomington*
Hahn, Wilbur George	*Springfield*
Hammer, Viola Rose	*Glencoe*
Handelman, Nathan	*Chicago*
Hanna, Harve Walter	*Chatsworth*
Harris, Bernard Franklin	*Chicago*
Harrison, James Elsworth	*Harrisburg*
Herman, Mandel	*Chicago*
Hill, Donald Miller	*Chicago*
Hilton, Neil Norton	*Chicago*
Hoelzel, Philip	*Watertown, Wisconsin*
Hout, Wesley Karl	*Lovington*
Idleman, Burley Clifton	*Kansas*
Indovina, Anthony Vincent	*Chicago*
Irving, Albert Gregg	*Chicago*
Jachino, John A.	*Coal City*
Jakubec, Charles Andrew	*Chicago*
Jindra, James Victor	*Chicago*
Jobusch, Lorenzo Bevans	*Aledo*
Johnston, William Greer	*Chicago*

Juhnke, Rollins Edger	*Waseca, Minnesota*
Kane, John Clement	*Chatsworth*
Karzen, Harry	*Chicago*
Keever, Ralph Elbert	*Marissa*
Keren, Meyer	*Chicago*
Kessler, Oscar Barney	*Chicago*
King, William Clifford	*Chicago*
Kinney, Frank John	*Buda*
Klocke, Edwin Pius	*Rock Falls*
Klowden, Harry Leonard	*Chicago*
Koelbel, Gerhardt Elmer	*Chicago*
Kulwinsky, Abe Mandel	*Chicago*
Laird, Russell Pulver	*Joliet*
Lauber, Clover Donat	*Oak Park*
Levin, Harry Enoch	*Chicago*
Lifshin, Hyman Noel	*Chicago*
LoCelso, Salvatore Anthony	*Chicago*
Lubeck, Harry Aaron	*Maywood*
McGuckin, Joseph	*Akron, Ohio*
McMahon, Vernon Thomas	*Waukegan*
McNorton, Gaston Elrose	*New Richmond, Ohio*
Maller, Benjamin	*Chicago*
Marek, Joseph Alois	*Chicago*
Markel, Raymond Paul	*Aurora*
Martin, John Hobert	*Chicago*
Menaker, Max M.	*Chicago*
Meyer, Grant William	*Ottawa*
Miller, George Campbell	*Marion*
Miller, Leslie Robert	*Coal City*
Mitnick, Morris	*Chicago*
Morello, Forrest LaVerne	*Abingdon*
Mosley, Ensley Lewis	*Daleville, Mississippi*
Mraz, Charles Ferdinand	*Cicero*
Mupo, Martin Eugene	*Chicago*
Nelson, Donald Winkler	*Dwight*
Newlander, Jacob	*Chicago*
Noble, Charles Kenneth	*Rushville*
Nordstrom, Albert Edward	*Waukegan*
Obartuch, Henry William	*Chicago*
Oliva, David	*Chicago*
Oppfelt, Glenn Alfred	*Aurora*
Parrillo, William	*Chicago*
Pawlowski, Stanislaus Aloyius	*Chicago*
Pisano, James Joseph	*Chicago*
Polikoff, Maurice Albert	*Chicago*
Pomorantz, David	*Chicago*
Rabinowitz, Maurice	*Chicago*
Radunsky, Maurice	*Chicago*
Rasmann, Margaret	*Antigo, Wisconsin*
Reinhart, Howard Barthell	*Peoria*
Reinstein, Arthur Harry	*Chicago*

Rene, Otis Joseph, Jr.	*Covington, Louisiana*
Rettke, Ralph C.	*Canton*
Riback, Harry	*Chicago*
Ricketts, Marion Maurice	*Forrest*
Roberts, Leo Albert	*Hillsboro*
Rosenberg, Charles	*Chicago*
Rosenfeld, Samuel Jacob	*Chicago*
Rowland, James Fred	*Chicago*
Rutledge, Charles Emmett	*Heyworth*
Sayre, Walter Louis	*Elgin*
Scheef, Irving Harrison	*LaGrange*
Schiff, Bernard	*Chicago*
Schmitt, Alfred William	*Nashville*
Schroeder, Sophie Willene	*Kankakee*
Schwartz, Saul Blair	*Chicago*
Searls, Floyd Dewey	*Amboy*
Seidmon, Leonard George	*Chicago*
Skala, Laddie Frank	*Chicago*
Sloan, Irving	*Chicago*
Smiley, James	*Chicago*
Smith, Samuel Morris	*Chicago*
Soldinger, David Charles	*Chicago*
Steinberg, Rose	*Chicago*
Stogis, Frances B	*Chicago*
Stokes, John Charles	*Chicago*
Stone, Sidney Manne	*Chicago*
Striegel, Harold Stanis	*Waterloo, Iowa*
Stuchlik, Vivian Josephine	*Chicago*
Swanson, Perle Ferdinand	*Chicago*
Swienton, Albert Stanley	*Chicago*
Taylor, Guy Clifton	*Decatur*
Thomas, Roderick Cecil	*DuQuoin*
Thompson, Arnold Albert	*McLeansboro*
Thompson, John Henry	*DuQuoin*
Tikatzky, Julius Max	*Chicago*
Tokarski, Cyrl Edward	*Chicago*
Tomaso, Salvatore Peter	*Chicago*
Tom, Ping	*Chicago*
Tompkins, Roy Earl	*Waterman*
Trueheart, William David	*Chicago*
Tuma, Frank Charles	*Berwyn*
Turek, Isador Edward	*Chicago*
Umenhofer, Adolph Melvin	*Chicago*
Underriner, Alfred Bernard	*Effingham*
Verrier, Arthur Henry	*Antioch*
Vidano, John	*Coal City*
Wabel, Ralph Alva	*Henry*
Wabel, Leslie Thomas	*Henry*
Watrous, Edwin Davis Baker	*Hampshire*
Weinstein, Julius	*Chicago*
Wenisch, Harry Arthur	*Chicago*

Westenberger, Fred George	*Chicago*
Wester, Edward Arthur	*Chicago*
Wild, Harold Alfred	*Joliet*
Wilson, Edith Read	*Chicago*
Winsberg, Harold	*Chicago*
Wolf, Isadore	*Chicago*
Young, Royal Araville	*Monroe City, Missouri*
Zielinski, Harry Peter	*South Chicago*
Zirwes, Howard	*Chicago*

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Giddings, Howard Donald	*Chicago*
Johannes, Philip	*Chicago*
Law, George Boyd	*Savanna*
Phillips, George William	*Chicago*
Smith, Herman Philip	*LaMoille*
Wiedman, Clem Joseph	*Effingham*
Workman, Maurice C.	*Flora*

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